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#### REPORT R-1646

DEVELOPMENT OF CASE, CARTRIDGE, ALUMINUM, FAT49E4

BY

HERBERT R. BURGESS

NOX

OMS 4230.1.8841.20.00.02 4230.1.8903.20.00.01 DA Project TS1-2

July 1962



FRANKFORD ARSENAL
RESEARCH AND DEVELOPMENT GROUP
PITMAN - DUNN LABORATORIES
PHILADELPHIA 37, PA.

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#### OBJECT

To design, develop and fabricate a satisfactory 7.62mm aluminum cartridge case by the blank, cup and draw process; to assemble sufficient cartridges, 7.62mm, Ball, M59 type with aluminum cartridge cases for firing tests for case evaluation.

#### **SUMMARY**

The 7.62mm aluminum cartridge case was designed, developed and evaluated. Initial development utilized regular brass cartridge case tooling with minor changes. Modifications to the initial cartridge case design eliminated problems encountered during fabrication. Various firing casualties such as primer leaks, blown primers and gas eroded heads were encountered during testing in rifles and machine guns. Changes in heat treatment, the type of propellant and primer used and a closer control of the head area dimensions of the case resulted in the fabrication of a 7.62mm aluminum cartridge case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Cartridge, 7.62mm, FAT49E4.

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#### INTRODUCTION

As part of the overall aluminum cartridge case project at Frankford Arsenal, development was initiated of 7.62mm aluminum cartridge cases by the blank, cup and draw process. With the experience gained in the fabrication of the other sizes of aluminum cartridge cases by the blank, cup and draw process, it was believed that the development of the 7.62mm aluminum cartridge case could be accomplished with a minimum of difficulty. In September 1955, \$15,000. was allotted from RAD Order 5040-5412-07-40101 (TS1-2) for the design, development and fabrication of approximately 10,000 7.62mm aluminum cartridge cases under DED Program No. 7-56, appendix A.

The regular tooling for the 7.62mm brass cartridge case was modified to accommodate the peculiar characteristics of the aluminum alloy used to fabricate these cartridge cases. A four-draw process for the fabrication of the 7.62mm FAT49E4 aluminum cartridge case was developed using the caliber .30 brass cartridge case machine equipment.

#### DISCUSSION

1. In September 1955, initial design work toward development of an acceptable 7.62mm aluminum case by the blank, cup and draw process was initiated under R&D Program No. 7-56. A quantity of 7075 aluminum alloy strip 0.180" x 3.0" x 48.0" was available at this Arsenal. This strip was annealed at 750°F for two hours and rolled to a required thickness of 0.160" ± 0.001". The material was again annealed at 750°F for two and one-half hours, slow cooled and blanked and cupped in a double action press. The tooling for this operation was the same as that used for the 7.62mm brass cup with the exception that the radius of the cupping die was increased from 0.560" to 0.600". The cups were examined under 2X magnification for fine cracks or splits, particularly at the inside bottom of the cup and for cracks at the inside

radius. Remaining tooling required was that normally used for the fabrication of the 7.62mm brass cartridge case four-draw process, with slight modifications. The machine equipment utilized was that normally used for fabrication of 7.62mm brass cartridge cases.

2. Approximately 550 cartridge cases were fabricated in this fashion, which were essentially the same in design as the 7.62mm brass cartridge cases except as shown in table 1.

Table I

Dimensions	Brass Case	Aluminum Case
Min. Wall Thickness (From Inside Base)	(Dwg C7553738)	
. 120"	.032"	.040"
. 370"	.023"	.029"
. 620"	.020"	.021"
1.310"	.010"	.012"
Head to Datum Length	1.634"006"	1.635"003" *
Body-Shoulder Junction Radius	.08" R.	.135" R.
Primer Pocket Depth	.126 + .005	.135 + .005"

3. Fifty of these cases were assembled into cartridges using 45.4 grains of WC846.4 propellant and primed with Remington #39 primers. These cartridges were identified as Lot #1 and were used to establish and verify the charge. Results of these tests are included in appendix B, summary of which follows:

#### Charge Establishment

Velocity - f/s	3	Pressure - p	si
Mean Vel	2715	Mean Press.	48,600
Vel. Correction	+21	Press. Correction	-1600
Corr. Velocity	2736	Corr. Pressure	47,000
Ex. Var.	33	Ex. Var.	2200
S.D.	11		

The remaining 500 cases were primed with Remington #39 primers and assembled into Cartridge, Ball, M59 type using 45.5 grains of WC846.4 propellant. The cartridges were identified as Lot 762-2. These cartridges were fired at ambient temperature and also after conditioning for two hours at -40°F for function and casualty in the T161 machine gun and the T44 and T48 rifles. Complete firing data is included in appendix B. There was one casualty, a burned through side wall in the cold firing in the T161 machine gun. This casualty resulted in a gun stoppage.

- 4. A second lot of approximately 500 cartridge cases was fabricated to further evaluate the case design. The tooling was the same as that used in the fabrication of the first lot with the exception of the draw punches. The initial draw punches had too small a radius on the working end and when this radius was increased, the cracks at the inside of the base, which had been prevalent in the previous lot, were eliminated. These cases were primed with Remington #39 primers and assembled into cartridges using 45.4 grains of WC846.4 propellant. This lot of cartridges was identified as 762-3.
- 5. The cartridges of Lot 762-3, after conditioning at ambient and -40°F temperatures, were fired for function and casualty in the T161 and T65 machine guns and the T44 and T48 rifles. There was one partial rupture and one burn through in the cold firing in the T65 machine gun. Complete firing data is included in appendix B.

- 6. In Lots 762-1, 2, and 3, the regular 7.62mm brass cartridge case tooling had been modified for the fabrication of the 7.62mm aluminum cartridge case components. Now new tooling incorporating all prior modifications was made and used to fabricate 3500 of the cases of most recent design for more extensive tests. These cases had the same basic case design as Lot 762-3. A copy of the drawing of Case, Cartridge, FAT49 type is included as figure C-1. The 3500 aluminum cartridge cases were primed with Remington #39 primers and assembled into cartridges using 45.5 grains of WC846.4 propellant. These cartridges were identified as Lot 762-4.
- 7. The 3500 cartridges of Lot 762-4 were fired at ambient temperature and also after conditioning for two hours at -40°F and +165°F, for function and casualty in the T65 and T161 machine guns and the T44 and T48 rifles. Twenty cartridges each were fired both wet and dry for velocity. Twenty drilled cartridges were also fired for pressure with velocity measured simultaneously. Complete firing data is included in appendix B, a summary of which follows:

#### T65 Machine Gun

T161 Machine Gun

Prin	ner Le	eaks	Rim	Shea	ırs	Gas	Eroded I	leads	Ru	ptur	es
H	С	A	H	Ć	A	H	С	A	H	С	A
204	_	8	1		_	<u>1</u> *	_	_	_		ī

\*Gun stoppage NOTE: Also, 9 severely stretched cases on the verge of rupture in the cold test in the T161 machine gun.

- 8. It was observed from the results of the tests of Lot 762-4 that a sharp angle existed on the inside of the case wall where the two tapers on the fourth draw punch met. Inadvertently, the blend radius was omitted when this punch was fabricated. This is believed the cause of the nine severely stretched cases which were very close to ruptures, encountered in the cold firing in the T161 machine gun. Two approaches were decided upon:
  - a. Reworking the existing fourth draw punch to include a blend radius (see fig. C-2);

- b. Fabricate a new fourth draw punch which incorporated a single taper, increasing case wall thickness at the midsection (see fig. C-3).
- 9. At this time, two new lots of aluminum strip had been obtained. One lot of strip had 7075 chemistry, but was of high purity grade, having been subjected to a sonic test which assured material with no flaws, dross, etc. greater than 1/64" size. The other lot of strip was of the same purity just described, but had modified chemistry. The allowable percentage spread of certain constituents was reduced, as listed below, the material still meeting the chemistry requirements of 7075 alloy:

Constituent	Composition Limits Spec, QQ-A-283	Composition Limits for Special  Material for this Program
Iron	0.7 Max.	0.20 Max.
Silicon	0.5 Max.	0.10 Max.
Chromium	0.18 - 0.40	0.17 - 0.20
Manganese	0.3 Max.	0.05 Max.

10. Accordingly, four lots of cases were fabricated utilizing both fourth draw punch designs mentioned and both types of aluminum strip. Identity of these lots is as follows:

Case & Ctg Lot No.	Quantity <u>Made</u>	Ctg Case Dwg.	Material
762-5	3400	FB38671	High Purity, Special Chem.
762-6	3500	FB30594	High Purity, Special Chem.
762-7	5200	FB8671	High Purity, Commercial
762-8	2600	FB30594	High Purity, Commercial

Cartridges were assembled with these cases using Remington #39 primers, 45.8 grains of WC846 propellant and M59 ball bullets. Extensive function and casualty testing was performed on the cartridges from each lot after conditioning for two hours at hot, cold and ambient temperatures in the T44 and T48 rifles and the T161 and T65 machine guns. In addition, pressure and velocity tests were conducted on cartridges from each lot. Detailed data of these tests is included in appendix B, a summary of which follows:

Lot 762-5

	Primer Leaks	Eroded Heads	Blown Primers	Splits
Н	560	18	•	
С	25	1		1
Α	20	0	•	

#### Lot 762-6

	Primer Leaks	Eroded Heads	Splits	Ruptures
Н	199	10	24	16
С	0	0	1	
Α	6	2	25	25

#### Lot 762-7

	Primer Leaks	Blown Primers	Eroded Heads	Ruptures
Н	547	8	17	93
С	48	0	0	1
Α	35	0	0	46

Lot 762-8

	Primer Leaks	Burn Throughs	Eroded Heads	Ruptures	Splits
Н	533	1	27	3	0
С	42	0	0	1	1
A	39	0	0	2	0

- 11. From the tests results of the four previous lots of cartridges, it was believed that a heavier web thickness might eliminate the head area defects encountered. Accordingly, fifty cases were fabricated using the special chemistry strip but with a web thickness increased from .059" to .090". All of these cases were primed with Remington #39 primers; half the cases were assembled into ball cartridges using 45.8 grains of WC846 propellant and the remainder were assembled into ball cartridges using 39.5 grains of IMR 4475 propellant. These cartridges were identified as Lots 11-A-1 and 11-A-2 respectively.
- 12. The cartridges of Lots 11-A-1 and 11-A-2 were conditioned for two hours at +165°F and then fired for function and casualty in the T44 rifle. In the firing results of Lot 11-A-1 there were 3 primer leaks and 11 blown primers with gas eroded heads. The firing of Lot 11-A-2 resulted in 6 primer leaks, 2 complete rim shears and 4 blown primers with gas eroded heads. Complete firing data is included in appendix B.
- 13. At this time, it was decided to determine the effect of various parameters upon primer area firing casualties. These parameters included use of primer vent seals, various propellants, smaller primer pocket diameter and one-piece vs. three-piece heading punches. (Formerly all cases fabricated under this project had been made using three-piece heading punches; use of a one-piece heading punch would permit incorporation of a slight "lead-in" radius at the entrance to the primer pocket).
- 14. All of the cases were fabricated from 7075-T6 special chemistry strip, and were assembled into M59 type cartridges using Remington #39 primers and propellant charge as listed in the following

table. All cartridges listed were conditioned at +165°F for two hours, prior to testing in T44 rifles and T52 machine guns, since this had been determined to be the condition at which incidence of primer area casualties was maximum. Complete firing data is included in appendix B; a summary of the results follows:

	Heading	Prope		Primer Vent	Primer Pocket	Ctgs	Primer	Gae Eroded	Blown	Rim
Lot No.	Punch	Туре	Chy. Gra.	Seal	Dia, (in)	Fired	Leaks	Heads	Primers	Shears
12A-1	3-Piece	W C846	45, R	No	. 2093 4 . 0005	110	52	14	0	2
5-A51	3-Piece	H£55232.99	19.5	No	. 2091 + , 0005	90	27	9	0	D
128-1	1-Piece	WC846	45,8	No	. 2093 + . 0005	95	54	5	0	2
12B-2	1-Piece	HES5232, 99	39.5	No	. 2093 + . 0005	107	19	0	0	0
120-3	1-Piece	WC846	45.8	Yes	. 2093 + . 0005	100	91	10	8	0
12C-1	J-Piece	WC846	45.8	No	. 2078 + . 0005	80	50	2	0	5
12C-2	3-Piece	HES5232.99	39.5	No	.2078 + .0005	100	18	4	G	0

#### 15. Results of these tests indicated the following:

- a. HES 5232.99 propellant, in combination with #39 primers yielded somewhat better performance insofar as primer area casualties, than did WC846 propellant in combination with the same primer.
- b. There was no significant difference in primer area casualties in the use of either the one or three-piece heading punch.
- c. No significant difference in performance insofar as primer area casualties was obtained between standard diameter and reduced diameter primer pockets.
- d. Use of cellophane primer vent seals resulted in increased primer area casualties.
- 16. In order to more carefully investigate the effect, if any, of various primer pocket diameters, approximately 400 cases were fabricated from premium quality, special chemistry strip, in which the primer pockets were machined to exact sizes as listed in the following table. These cases were primed with Remington #39 primers and assembled into cartridges using 45.8 grains of WC846 propellant. The pockets had very smooth walls with no scratches or bulges that might provide an avenue of escape for gases. The cartridge lots were identified as follows:

Lot No.	Pocket Diameter	No. of Rounds
13-A-1	.2080" ± .0001	95
13-A-2	.2085" ± .0001	• 99
13-A-3	.2090" ± .0001	104
13-A-4	.2095" ± .0001	102

After verification of charge and conditioning at +165°F for two hours, Lots 13-A-1, 2 and 3 were fired for function and casualty in the T44 rifle. After similar conditioning Lot 13-A-4 was fired for function and casualty in the T65 machine gun. Although extreme care was

taken in the machining of the primer pockets, the firing tests resulted in a large percentage of primer leaks. Detailed firing results are contained in appendix B., a summary of which follows:

	Primer Leaks	Eroded Heads
Lot 13-A-1	<b>4</b> 9	6
Lot 13-A-2	60	4
Lot 13-A-3	23	1
Lot 13-A-4	67	3

- 17. A study was then initiated to determine whether maximum strength was being developed by the solution heat treatment and artificial aging being given the cartridge cases.
- 18. Approximately 715 cartridge cases were fabricated from 7075 premium quality, special chemistry strip. These cases were divided into lots which underwent different solution temperatures and time at the temperatures, as listed below and as shown in photomicrographs, figures D-1 through D-9. To help guard against development of structure, the air agitator was turned off in the water quench and the water was rapidly circulated by increasing the water velocity through the water inlet valve. Also the cases were artificially aged immediately after the solution quench treatment.

NOTE: Even though firing results showed little improvement, it was thought these procedural changes beneficial and they were used in the fabrication of cases for the balance of tests under this project.

The cases were primed with Remington #39 primers and assembled into cartridges with 45.8 grains of WC846 propellant. The lots of cartridges, assembled with cases of different lots according to varying solution heat treatment were identified as follows:

Lot No.	Solution Heat Treatment	No. of Rounds
13-B-1	860°F/30 Min	105
13-B-2	870°F/25 Min	76
13-B-3	870°F/30 Min	87
13-B-4	870°F/35 Min	88
13-B-5	870°F/40 Min	* 104
13-B-6	880°F/30 Min	66
13-B-7	890°F/25 Min	102
13-B-8	890°F/30 Min	88

19. After conditioning for two hours at +165°F, the eight lots of cartridges were fired for function and casualty in the T44 rifle and T52 machine gun. Complete firing results are included in appendix B, a summary of those results follows:

	Primer Leaks	Gas Eroded Heads
13-B-1	20	29
13-B-2	22	16
13-B-3	22	15
13-B-4	13	10
13-B-5	30	50
13-B-6	29	• 12
13-B-7	15	9
13-B-8	13	8

The cartridges developed many firing casualties and there was no apparent difference in any of the heat treatments in relation to the firing results.

20. The next approach in elimination of the priming area firing casualties was to determine if type of primer had any significant effect on these casualties. It was decided to fabricate two lots of cases and arm them with #72 and #39 primers. Upon examining the #39 primers which were intended for use, it was observed that the edges of the cup were rough and it was thought that such edges might be possible avenues of escape for the primer and/or propellant gases. Accordingly, some #39 primers were reworked to remove the rough edge. The primed cases were assembled into cartridges using 45.8 grains of WC846 propellant and the lots were identified as included in table II. Three lots of cartridges were conditioned at +165°F for two hours prior to firing for function and casualty in the T44 rifle. Cartridges from lot 13-C-2 were also fired for function and casualty in the T65 machine gun. Results of the firing are shown in the following table:

Table II.

Lot No.	Primer	No. of Rounds	Primer Leaks	Gas Eroded Heads	Blown Primers
13C1	#72	72	8	0	0
13C2	#39	59	11	17	3
13C3	#39 w/rough edges re- moved	56	16	28	0

21. In the development of the various calibers of aluminum cartridge cases at this arsenal, several alloys and conditions of strip have been used. It has been determined, through fabrication experience at Frankford Arsenal, that the use of 7075 alloy produced the best results. In former cartridge case fabrication T-6 condition strip had been used. It was believed, at this time, that

7075 alloy "O" condition strip might eliminate some difficulties encountered in fabrication. The 7075-0 strip is received in a long cycle annealed condition to preserve the soft, workable properties whereas the 7075-T6 material is received in the age hardened condition. It was believed, with the use of the 7075-0 material, that fabrication could start on the "as received" strip without annealing prior to use and that the workable properties of the material would insure results superior to those possible in the use of the 7075-T6 strip even after annealing. Contrary to this the cups processed from 7075-0 material were unsatisfactory and only slightly improved cups would be processed after the "as received" 7075-0 strip was annealed. Photomicrographs (figs, D-10 and D-11) were taken of the 7075-0 material "as received" and the 7075-T6 material after annealing. The constituents in the 7075-0 material "as received" were large and not oriented directionally. Also the photomicrographs suggest a greater solution of alloying elements. These facts account for the poor cupping quality even though the hardness readings indicated a fully annealed condition. The final solution to eliminate the cracks in the cupping operation to attain a satisfactory structure was by giving the 7075-0 material a solution quench treatment at 890°F for 30 minutes followed by a water quench and these followed by an anneal; after this treatment the material cupped perfectly. A photomicrograph of resultant conditions is shown in figure D-12.

- 22. It was decided to determine what effect, if any, vent hole diameter had upon primer area firing casualties. A small control lot of cases was fabricated from 7075-0 material with the regular vent hole diameter of .078 + .004. Fifty-five cases were fabricated from the same strip but had an enlarged vent hole diameter of .1093 + .004. All were assembled into cartridges with #39 primers and 45.8 grains of WC846 propellant. Cartridges assembled with cases having regular vent holes were identified as Lot 14A1; those having an enlarged vent hole were identified as Lot 14A2. After conditioning for two hours at +165°F, the cartridges of both lots were fired for function and casualty in T44 rifle. The firing of Lot 14A1 resulted in 3 small primer leaks while 14A2, with the enlarged vent hole, developed 4 small and 6 large primer leaks when fired.
- 23. Inasmuch as the firing results still showed primer area casualties, it was decided to discontinue efforts to modify the case dimensionally or structurally in an attempt to overcome primer area casualties, but rather to go, as a last resort, to the use of the

steel adapter cup-type primer which had proved fruitful in eliminating primer area casualties in other sizes of small arms aluminum cartridge cases. A small quantity of Remington #72 primers with copper plated steel adapter cups were available at this arsenal from a prior aluminum case contract. Accordingly, approximately 180 cartridge cases were fabricated from 7075-T6 condition special chemistry premium quality strip. Since the Remington #72 primer with steel adapter cup requires a large diameter primer pocket, the pockets of these cases were increased to .2295" + .0005". A drawing of Case, Cartridge, FAT49E4 with this enlarged primer pocket is shown in figure C-4. These cases were made with a three-piece heading punch.

- 24. Eighty-seven of these cases were vented with a regular vent hole punch .078 + .004" diameter and 92 with an enlarged vent hole punch .1093" + .004". All cases were primed with Remington #72 adapter cup-type primers and assembled into cartridges using 40.0 grains of HES 5232.99 propellant. Cartridges assembled with cases having regular vent holes were identified as Lot 15A and those assembled with cases with enlarged vent holes were identified as Lot 15B. Cartridges of both lots were fired for function and casualty in the T65 machine gun with the ammunition at both ambient and +165°F. Velocity and pressure firings were performed as controls. Complete firing data is included as appendix B. There were no case casualties of any sort in any of these tests.
- 25. Approximately 800 cases were fabricated from 7075-0 strip using a three-piece heading punch. These cases were primed with Remington #72 primers, assembled with steel adapter cups. They were assembled into cartridges using 40.0 grains of HES 5232.00 propellant. The cartridges were identified as Lot 16-0. A small lot of approximately 45 case rejects were assembled into cartridges to be fired for informational purposes. This lot of cartridges was identified as Lot 16-0 rejects. Two hundred and forty cartridges of Lot 16-0, after conditioning for two hours at +165°F and 70°F were fired immediately for function and casualty in the T65 machine gun. The balance of the cartridges of Lots 16-0 and 16-0 rejects were fired for function and casualty at ambient temperature in the T44 rifle and the T65 machine gun. Complete firing data is included in appendix B. There were 3 rim shears and 2 case (SJ) splits but no primer leaks. Approximately 900 cases were fabricated from 7075, Condition T-6 commercial chemistry strip. A three-piece heading punch was used. These cases were primed with Remington #72 primers with steel adapter cups.

- a. Approximately 160 cases had rough mouths due to dull tooling in the final trim. These cases were assembled into cartridges using 40.0 grains of HES 5232.99 propellant. This cartridge lot was identified as 16-TR.
- b. Seven hundred and twenty cases were assembled into cartridges using 40.0 grains of HES 5232.99 propellant. These cartridges were identified as Lot 16-T.
- c. Four hundred and eighteen cases were rejected from the 16 case lots because of large head diameters. These cases were fabricated both from 7075-0 and 7075-T6 strip. After reaming the primer pockets where necessary, the cases were primed with Remington #72 primers with steel adapter cups, and assembled into cartridges using 40.0 grains of HES 5232.99 propellant and identified as Lot 16-TO.
- 26. The cartridges of Lots 16-TR, 16-T and 16-TO were fired for function and casualty, hot, cold and ambient in the T44 rifle and T65 machine gun. Complete firing data is included in appendix B, a summary of which follows:

#### Casualties

Lot No.	Gun	Rin H	n She	A A	_	Spli C			iptu <u>C</u>	res	Th	Buri rou <u>C</u>	
16-TR	T44	0	0	0	5	0	2	0	0	0	5	0	0
16-T	T65	8	0	0	4	1	1	1	1	0	4	0	0
16-TO	T65		No C	asual	ties								

Cartridge lots 16 and its sub-lots totaled approximately 2000 cartridges. The firing of these cartridges resulted in 30 casualties as summarized above. These casualties are serious because they caused 13 gun stoppages. However, the cases were carefully checked and soft spots were found which would cause weakened areas in the case wall. Further investigation disclosed that the

heat treating equipment was not functioning properly thus causing the soft spots. Since there were no such casualties in lots 11 through 15 it was assumed that equipment failure caused improper heat treatment with resultant casualties. There were no primer leaks. Upon completing the fabrication of all lots of aluminum cartridge cases, prior to priming, the cases were anodized using the alumilite process. A copy of this anodizing procedure is included in appendix E. The cases were then mouth annealed, the mouths of the cases being immersed 1/4" for 8 seconds in a saline solution maintained at 700°F and then quenched in tap water. The cases were then "dag" coated as a preservative and as an aid to chamber extraction.

#### CONCLUSIONS

It is concluded that the 7.62mm, FAT49E4 aluminum cartridge case has been successfully developed. The causes of various case casualties, developed in the firing of the 7.62mm cartridges assembled with these cases, have been eliminated. The greatest problem, that of the primer area defects has been solved by the use of the copper plated steel adapter cup-type primer.

Tooling for fabricating the caliber 7.62mm, FAT43E4 cartridge cases by the blank, cup and draw process has been developed. This tooling is listed on Plan of Work, see figures C-5, C-6-1, C-6-2, C-6-3 and C-7.

A blank, cup and draw process for the fabrication of the 7.62mm, FAT49E4 aluminum cartridge case was developed. This process is based upon the use of equipment available in the fabrication of the 7.62mm brass cartridge case. In the event of large scale fabrication, changes in the feeding mechanism would be necessary due to the lightness in weight of the aluminum components.

Distortion and warpage of aluminum case components can be greatly minimized by solution heat treating the components prior to the tapering operation. Because of the rapid aging characteristics of 7075 aluminum alloy, it is necessary that the tapering operation be performed within four hours after the solution heat treatment.

A minimum head and sidewall hardness of Rockwell 30T 70 is necessary for satisfactory functioning of cartridges assembled with aluminum cases.

Primer area casualties, caused by primer leaks and blown primers, have been practically eliminated through the use of the copper plated steel adapter cup primer. The key to the elimination of the head area casualties without the use of the adapter cup primer should be in the development of the proper case head hardness and continuity of the anodize coating on the surfaces of the case base interior and the primer pocket.

#### RECOMMENDATIONS

Additional lots of 7.62mm aluminum cartridge cases should be fabricated and assembled into cartridges for more extensive firing tests. The following recommendations should be considered in the fabrication of these cases:

The use of 7075, Condition T-6, premium quality, commercial chemistry, aluminum strip.

An increase in web thickness to strengthen head area.

The use of a fourth draw punch having a .001"/inch single taper.

The adoption of the three-piece heading punch in conjunction with the use of the Remington #72 primer with steel adapter cup and the adoption of the one-piece heading punch when the case is primed with the regular primer. The one-piece heading punch gives a slight radius at the mouth of the primer pocket as a leading for the regular primer.

The development of a more uniform, closely controlled heat treatment and a quicker solution quench after heat treatment should be devised. Also a rapidly circulating quench would be preferable to the air agitated quench. The elimination of delay between solution quench treatment and artificial aging should also be accomplished.

The continued use of the Remington #72 primer with copper plated steel adapter cup at the present time.

A continued effort to develop a primer pocket which would permit the use of the regular primer without resultant primer leaks. This could possibly be accomplished through pocket and heading in two operations rather than single shot heading. The elimination of any taper in the primer pocket might provide the answer.

#### APPENDIX A

No. 7-56

13 September 1955

#### DEVELOPMENT ENGINEERING DIVISION

#### RESEARCH AND DEVELOPMENT PROGRAM

Project:

TS1-2

FA 3-2-6-9

Priority:

1C-368

Charge:

RAD 5040-5412-07-40101 Ex. O. 51702-02-518

Est. Cost: \$15,000.00

Project Director: Mr. E. W. Read

Project Engineer: Mr. S. Miller

Coordinator:

Mr. H. Burgess

Subject:

Case, Cartridge, Cal 7.62mm Type, Aluminum

Object:

- a. In connection with engineering design studies and evaluations for developmental ammunition and related material, to develop a satisfactory cal 7.62mm aluminum cartridge case by the blank, cup and draw process.
- b. To make firing samples for preliminary design studies of cal 7.02mm aluminum cartidge cases made by the blank, cup and draw process.

#### Introduction:

1. As part of the overall aluminum cartridge case project at this arsenal, it is desired to develop a satisfactory blank, cup and draw process for the fabrication of cal 7.62mm type aluminum cartridge cases. A maximum of 10,000 cartridge cases is to be made under this program.

2. The work to be performed under this program has been discussed with the following personnel:

Messrs. A. Lippincott

F. Costello

E. Olszanowski

L. Furmanski

R. Donnard

J. Werst

#### Instructions:

- 3. SD-D: a. Prepare a drawing of the cal 7.62mm type aluminum case from data supplied by SD-M. Assign an FAT number to this drawing.
- b. Prepare a drawing of cartridge, ball, caliber .30, T104El type, utilizing the case from par. 3.a. Assign an FAT number to this drawing.
- c. Prepare drawings of necessary work and inspection gages for use in processing cal 7.62mm type aluminum cases as requested by SD-M.
- d. Prepare tool drawings as requested by SD-M.
- 4. SM: Make necessary work and inspection gages as requested by SD-M, in accordance with drawings made by SD-D.
- 5. SP-3 (Mr. Dorsam): Have necessary tools made, as requested by SD-M, in accordance with drawings prepared by SD-D.
- 6. SZ: a. Using available strip stored in SZ, fabricate lots of cal 7.62mm type aluminum cartridge cases, according to Drawing No. C7553738, or, as directed by SD-M.
- b. Upon receipt of mouth annealed cases from SS "Dag" coat case bodies and heads, allow to dry, and then deliver the coated cases, properly identified, to SL for priming and loading.

- 7. SW-2: Anodize the cases delivered by SZ in the manner prescribed by the equipment operating instructions. Deliver the cases, properly identified, to SK for inspection.
- 8. SK: a. Make measurement surveys of components as requested by SD-M.
- b. I&G the cases delivered by SW-2. Deliver cases, properly identified, to SS.
- c. I&G cartridges delivered by SL. Deliver cartridges, properly identified, to SF.
- 9. SS: Mount anneal the cases delivered by SK in the usual manner, or as directed by SD-M. Forward mouth annealed cases, properly identified, to SZ.
- 10. SL: a. Forward necessary components, properly identified, to SF for establishment of propellant charge.
- b. Prepare machine loaded verification sample as directed by SD and deliver, properly identified, to SF.
- c. Prime cases delivered by SZ with current production primers as directed by SD-M.
- d. Load and assemble car ridges as directed by SD, using propellant of the current production lot. Deliver cartridges, properly identified, to SF.
- 11. SD (Mr. Beugless): Establish and verify charge for Cartridge, Ball, Cal 7.62mm, T104E1 type with aluminum case.
- 12. SX: Deliver propellant and primers, of current production lots, to SL, as requested.
  - 13. SF: CAUTION: THE CARTRIDGES TO BE FIRED UNDER THIS PROGRAM ARE EXPERIMENTAL, HENCE TAKE ALL POSSIBLE PRECAUTIONS FOR THE SAFETY OF GUNNERS AND OBSERVERS.

a. Establish propellent charge for Cartridge, Ball, Cal 7.62mm, T104El type with aluminum case. Report results to SD.

 $$b_{\bullet}$$  Fire verification of propellent charge tests and report results to  $SD_{\bullet}$ 

c. Fire other single shot, rifle and machine gun function tests as directed by SD-M.

14. SD-M: Make tests and perform such design, development and engineering duties as may be required for the performance of this program.

/s/ N. H. Gear for J. PETERS

HRB/nfr

Account #1 B.DC.
B. De CASTRO

/s/ Samuel W. Parnelle, Jr.

Lt Col, Ord Corps
Chief, Small Arms Ammunition Dept

SAMUEL W. PARNELLE, JR.

Copies to:

SP-1, Mr. Peters

SP-2, Mr. Penn

SD-D, SM, SP-3, SZ,

SW-2, SK(3), SS, SL,

SX, SD-M, SD, SD-A(2),

ORDIM, ORDTS, OAC

Messrs. Beugless,

Lippincott, Olszanowski,

Donnard, FCostello,

Furmanski, Werst, Fay,

Sprofera, SMiller, Burgess,

SP File (2), Cost Sect (3)

Selby

Sprofera

DiRenzo

750/12 mos/30 Sept 56

#### APPENDIX B

	RT L	OT		VE.	LOCITY	G PRES	JUKE	REPURI		CAL	.IBER30	<u> </u>
CH/	ARGE	45.4 grs	OBJE	CTı	Establish	n Charge				BUL	LET Ba	11
CA	SE A	luminum										
901	14.55	Rem #39			R&D P #7-	- 56			1022 0	DS. 8	C.P.	
FR:	MET	4 Vem h22	SPEC	:						783E2		
EC.	NO.				BRL. NO.		TRED.			0633	CHG.	45.6
EG.		FA Univers			BRL. NO.	R-51	TRFD.	70	C-357	B-426		
EG.		FA Univers	al #10		BRL. NO.	G-67	TRFD.	185	V. V.	2748 £		
EG.	HO.	<del></del>			BRI. NO.		TRFD.		P. V.	5,400	psi	
		Ref		45,4					·		- /	
	├	2731	Τ	2706	<del> </del>		2725	47500		2701	48000	Τ
L		2726		2701-	<del>*************************************</del>	<del> </del>	<i>‡</i> 2729	46300	<del></del>	-2688	48900	<b>†</b>
) <u>.                                    </u>		2731		27344			2726	48300		2691	47600-	
		2725		2717			2722	45800-		<b>≠2707</b>	49800+	
<b>.</b>		2743/		2716			-2716	46300				
Γ		2722										
<u>.                                    </u>	<u> </u>	2719					13618	234800		10787	194300	
8.	L	2723					2724	48000		2697	48600	Ц.
9	<u> </u>	2732		L	<del></del>	ļ	<b></b>		Pr.C.		-1600	↓
10		2714-					<b>↓</b>	<b> </b>	Cor P.		47000	—
Щ.				L	<del></del>	ļ	<del> </del>	<del></del>			<b></b> _	↓
12.		27266	Total	13574	<del> </del>	ļ	13	3100	Ex.Var	19	2200	<b>├</b>
13.		2727	Mean	2715		<del> </del>	<del> </del>	<del>  </del>		7		₩-
14. 15.			V Cor Cor V	<del>121</del> 2736	<del> </del>	<del> </del>	<del> </del>	├──┤			<del> </del>	┼─
16.	<del></del>	<del>-  </del>	COT	2/30	+	<b></b>	<del> </del> -	<del>  </del>	<del></del>		<b></b>	<del> </del>
17.		29	Ex.Var.	33	<del>                                     </del>	<del></del>	<del> </del>	<del>                                     </del>			<del> </del>	+
18			<u> </u>		<del></del>		<del>                                     </del>				<del></del>	†
19.	_		S.D.	11		1	1					
20.			3.12.1									
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						9	desc		E1 70	2 02 51		
		MERS OK			R <u>onograph</u> Nner		ldree enscher	W. (		2-02-51 -6-9	.0	
		inero VA										

Powder: W 846.4 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM N. LOT 7.62 - 2 Charge: 45.4 grs CALIBER .30 L.R. FUNCTION AND CASUALTY TEST
D.E.D.R. & D.P. No. 7-56 OULLET Aluminum Primer: Rem #39 CARTRIDGE\_ AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. T.A. GUN DATA T-161 MG. Lot #2 <u> Lot #2</u> Lot #2 TYPE OF GUN HANGFIRE T-161 T-161 T-161 NO. OF GUN 4735 4766 4858 ROUNDS IN GUN NO. OF BARREL 4735 4766 4858 ROUNDS IN BARREL -HEAD SPACE PIN PROTRUSION 15 22 31 ROUNDS FIRED 15 31 22 RDS. IN BURST OR GLIPS 1 NO. OF BURSTS OR GLIPS Williams William William: GUNNER GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS OK OK AMM. FUNCTION Cold Ficing Normal Firing Normal Firing REMARKS: \_\_ \*1 stoppage: Due to burned thru case Broke Extractor Lot #7.62 - 2 Test discontinued. SM GAL. .50 M3 AG R.U.S. CAL .. 30 M/903A3 GM GAL. 30, B. M1917A1 PISTOL AUTO CAL. .45 MIGHAI GM GAL. .60 TITES GM CAL. .30, B. A. C.. GSM CAL. .45 M3 M3AI GM GAL. .60 T59 GM GAL. 30, B. M/9/9A4 GA GAL. . 60/20 MK 12 GM GAL .. 22 M3 - M4 GM CAL. 30, B. M1919A6 GA 20 MM · M3 SH GAL . . 50, B. M2 AG R.A. CAL..30, B. M1918A2

GA ZOMM MZ4AI

\_GHIEF BALLISTIGIAN\_

w.o. 51702-02-518 DATE FIRED LIAN 56

R.U.S. GAL . . 30 MI

FOREMAN H. A. Fala

GM CAL. .50, B. ME HB

Powder: WC 846.4 PRIMER LOT 762 -FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT #2 Charge: 45.4 grs GALIBER .30 L.R. FUNCTION AND CASUALTY TEST BULLET Aluminum Primer: Rem #39 D.E.D.R. & D.P.No. 7-56 CARTRIDGE\_ AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. F.A. GUN DATA TYPE OF GUN HANGFIRE T-161 T-44 T-48 T-161 T-44 T-48 055 3 1 055 NO. OF GUN 4720 ROUNDS IN GUN 871 6522 4836 891 6542 NO OF BARREL 1 4836 4720 871 ROUNDS IN BARREL 6522 891 6542 2.186" 2.181" 2.186" 2.181" HEAD SPACE .053" .056" PIN PROTRUSION .053" .056" 70 70 ROUNDS FIRED 20 20 20 70 20 20 RDS. IN BURST OR GLIPS 70 20 20 NO. OF BURSTS OR CLIPS 1 1 1 Williams Williams | Williams GUNNER Williams Williams Williams GUN FUNCTION GROUP (MS) ZERO (MS) **DEFECTS** PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION OK OK REMARKS: Normal Firing Cold Firing

GM CAL. 30, B. M1917A1 GM CAL. 30, B. A. C. GM CAL. 30, B. M1919A4 GM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918A2 R.U.S. CAL. 30 M1

RECORDER Seixas

R.U.S. CAL..30 M1903A3 PISTOL AUTO CAL..45 M1911A1 GSM CAL..45 M3-M3A1

GM GAL..22 M3-M4 GM GAL..50, B. M2 AG GM GAL..50, B. M2 HB 6M CAL..50 M3 AC 6M CAL..60 TITES 6M CAL..60 T59 6A CAL..60 759

GA CAL. .60/20 MK 12 GA 20 MM M3

GA 20MM M24AI W.O. 51702-02-518 DATE FIREDLL Jan 56

\_\_ CHIEF BALLISTICIAN\_\_

Powder:	WC 846
Charge:	45.4
Dadman	n420

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST DEDR and DP No. 7-56

PRIMER LOT\_ AMM'Y. LOT 3

army-maritan arbenal (MMPC), metuchen, MJ-80-807;

Primer: Rem #39	AUTOM		DP No. 7-5 SEMI-AU		WEAPONS		F.A.	
			Normal	DATA	<del></del>	1	Cold	
TYPE OF GUN	HANGFIRE	T-65	T-44	T-48	T-0	65	T-44	T-48
NO. OF GUN		472850	1	055	4728		1 .	055
ROUNDS IN GUN		3915	1031	6682	418		1261	6912
NO OF BARREL		18	1	1	18		1	1
ROUNDS IN BARREL	i	3915	1031	6682	418		1261	6912
MEAD SPAGE	<del> </del>	2.183"	2.186"	2.181"	2.18		2.186"	2.181"
PIN PROTRUSION	<u> </u>	.065"	.053"	.056"		55"	.053	.056"
ROUNDS FIRED		135	40	40	13		40	40
RDS. IN BURST OR CLIPS	<del>                                     </del>	80-55	20	20	80-	_	20	20
	<del>                                     </del>	1-1	2	2	1-1		2	2
NO. OF BURSTS OR CLIPS GUNNER	<del> </del>	Gambino	Williams	Williams	Cami			William
			GUN FU	NCTION				
GROUP (MS)		$\bot$			<u> </u>	$oxed{oxed}$		1
ZERO (MS)						<u> </u>		<u> </u>
			DEFEC	TS				
PRIMER LEAKS								
PRIMER PERFORATIONS	I					1		.l
LOOSE PRIMERS	i	Ŧ ·						
CASE SPLITS				T		T		T
RUPTURE		I .						
STRETCHES						1		L
GAS FLASHES		I						<u></u>
BREECH FLAMES	i				<u> </u>			ļ <u>.</u>
BREECH SPARKS								
AMM. FUNGTION		OK	OK	OK	4	•	OK	OK
REMARKS:						1 Pay	rtial Ru	<u>ptura</u>
		•						
M CAL. 30, B. M1917A1			AL.30 MI90 AUTO GAL.		GM GAL5 GM GAL6			
BM GAL30, B. A. C. BM CAL30, B. M1919A4	1		L 45 M3 M3		GM GAL		-	
•			22 M3 W4	~*	GA GAL		MK 19	
M CAL. 30, B. M1919A6			22 M3 M4 50, B. M2 A	c	GA 20 MM			
R.A. GAL <b>30, B. M1918 A2</b> B. U. S. GAL. <b>30 M</b> 1	•		50, B. M2 H		6A 20 MM			
R.U.S. GAL30 MI REGORDERKing		UM UAL.		-	v. o. 51702-02-5	18 047	F FIRED_	15 Feb 5

Charge: 45.5 grs Primer: Rem #39	1		ARSENA AND CA			. G	RIMER LOT. MM'N. LOT. ALIBER 7. ULLET BA ARTRIDGE	762-4 62mm
	AUTOMA	TIC 8	SEMI-AUT	TOMATIC	WEAPON	VS .	FG. T.A.	
			GUN	DATA		\	· · · · · · · · · · · · · · · · · · ·	
TYPE OF GUN	HANGFIRE		T-65	T-161	T-44	T-48		
NO. OF GUN	793756		472850	5	1112	055		
ROUNDS IN GUN	13710		6020	885	120	8212		
NO OF BARREL	20		18	1	1	1		
ROUNDS IN BARREL	1400		6020	685	120	8212		
MEAD SPACE	2.183"		2.183"	-	2.187"	2.183	11	
PIN PROTRUSION	.065"		.064"	-	.056"	.056"		
ROUNDS FIRED	250		300	200	120	120		
RDS. IN BURST OR CLIPS	50		100	100	20	20		
NO. OF BURSTS OR GLIPS	5		3	2	6	6		
GUNNER	Cantano		Balcer	Sokoloff	Sokolofi		off	
	-		GUN FUI					
GROUP (MS)	.7 8	.6 .4	7					T
ZERO (MS)	111.d			<u>i 1</u>	1			
			DEFEC	TS				
PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS			<u> </u>		ļ			
RUPTURE	ļ			4	ļ			
STRETGHES			<del>* 9</del>					
RAS_FLASHES	ļļ.		<b>_</b>	ļ	<b> </b>			<del></del>
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION	OK		<u> </u>	OIK	OK	OK		
REMARKS: 9 STRE	TCHED CA PTURE	05E5 V	ERY SEVE	rely str	RETCHED	. ON T	WE, VER	6 <i>E</i>
		_						
								-
								-
Cold Firing		840 0	A TO HISS	) A 9:	eu e	AL50 M	VR 46	
M GAL .30, B. M1917A1			AL .30 M1903			AL50 N AL60 T		
M CAL. 30, B. A. C.			AUTO CAL.			1L60 T		
M CAL. 30, B. M/9/9A4			L 45 M3°M3A	• •				
M CAL. 30, 8. M1919A6			.22 M3-M4	_			20 MK 12	
R.A. GAL30,B. M1918 A2			.50, B. ME AC			0 MM M3		22623 Aug. 56
P.U.S. CAL30 MI RECORDER King	& William	UM GAL.	.50, B. M2 HB		o A 20 • 0 51.702•	OMM ME		22 <b>&amp;23</b>

REGORDER\_

FOREMAN.

W. O. 51702-02-11 DATE FIRED AND

GHIEF BALLISTICIAN John P. Werst

Charge: 45.5

## FRANKFORD ARSENAL PROOF HOUSE

Primer: Rem #39	FUNCTION AND CASUALT				Y TEST	84	BULLET Ball M2  GARTRIDGE		
	AUTOMA	TIC 8	SEMI-A	AUTOMATIC	WEAPOI	VS I	F. F.A		
	L		GU	IN DATA					
TYPE OF GUN	HANGFIRE		T-65	5 T-161	T-48	T-44			
NC. OF GUN	793756		472850	) 5	055	1			
ROUNDS IN GUN	13460		5720	1085	8562	2673			
NO OF BARREL	20		18	1	11	1			
ROUNDS IN BARREL	1150		5720	885	8562	2673			
HEAD SPACE	2.183"		2.183		2.183"	2.186"			
PIN PROTRUSION	.065"		.0641		.056"	.053"			
ROUNDS FIRED	250		300	200	120	120			
ROS. IN BURST OR CLIPS	50		100	100	20	20		$\perp \perp$	
NO. OF BURSTS OR CLIPS	5		3	2	6	6			
GUNNER	Pantino		Balcer	Sokoloff	Sokoloff		EE		
				FUNCTION					
GROUP (MS)	.5 .4	.4 .5	.6						
TERO (MS)	11.0								
·			DEF	ECTS					
Gas Eroded Head				<u> </u>					
PRIMER LEAKS	149		55						
PRIMER PERFORATIONS					T				
LOOSE PRIMERS	5					T		1	
CASE SPLITS					1	1			
RUPTURE									
STRETCHES					I				
GAS FLASHES			25%				1		
BREECH FLAMES					1				
BREECH SPARKS						·			
AMM. FUNCTION	*				OK	OK			
REMARKS: * 1 Stoppage d	ua ta rim	ahaar							
1 Scoppage u	ue to rim	Buear	····						
·									
	·								
	<del></del>						<del></del>		
		<del></del>							
Hot Firing				· · · · · · · · · · · · · · · · · · ·					
M GAL .30, B. M/9/7A/	<del></del>	R.U.S. (	CAL 30 M	1903A3	GM C	AL .50 M	3 AG		
M GAL. 30, B. A. C.				L45 MISILAI		AL .60 T.			
M GAL. 30, B. M/9/9A4			L 45 M3			AL 60 TS			
M CAL. 30, B. M1919A6			22 M3"			AL .60/2			
R.A. GAL. 30, B. M1918 A2			50, B. ME			O MM M3			
LUC CAL BOWL		GM CAL	50, B. M2			O M M M 84	Al	22&23	
Kin Kin	g & Willia	me							
RECORDER	.D ~	<del></del>		■	v. o51702		ATE FIRE	מכ שות ל	

Powder: WC 846.4 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N LOT 762-4 GALIBER 7.62mm BULLET Ball Charge: 45.5 grs FUNCTION AND CASUALTY TEST CARTRIDGE F.A. R&DP No. 7-56 Primer: Rem #39 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. GUN DATA TYPE OF GUN HANGFIRE T-65 T-161 T-48 T-44 793756 NO. OF GUN 472850 5 055 1 ROUNDS IN GUN 14310 705 5120 8442 20 NO. OF BARREL 18 2000 5120 505 8442 2553 FOUNDS IN BARREL 2.183" 2.183 2.183" HEAD SPACE 2.186" PIN PROTRUSION .065 .064" .056" .056" 600 200 ROUNDS FIRED 300 120 120 50 100 RDS. IN BURST OR CLIPS 100 20 20 12 NO. OF BURSTS OR CLIPS 2 6 6 Pantano GUNNER Balcer Sokoloff Sokoloff Sokoloff GUN FUNCTION GROUP (MS) .5 5 .4 ZERO (MS) DEFECTS PRIMER LEAKS 8\_ PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE Partial STRETCHES 25% GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION OK REMARKS: \_ Normal Firing GM CAL. .50 M3 AC

GM GAL. 30, B. M/9/7A/
GM GAL. 30, B. A. C.
GM GAL. 30, B. M/9/9A4
GM GAL. 30, B. M/9/9A6
R.A. CAL. 30, B. M/9/8A2
R.U.S. CAL. 30 M/
RECORDER King & Williams

FOREMAN-

R.U.S. GAL..30 M1903A3 PISTOL AUTO GAL..45 M1911A1 GSM GAL..45 M3-M3A1 GM GAL..22 M3-M4

GM GAL. 50, B. M2 AC

GM CAL . 50, B. M2 HB

AI GM CAL. 60 TITES GM CAL. 60 T59 GA CAL. 60/20 MK 12 GA 20 MM M3

W.O. 51702-02-11 OATE FIRED Aug 56

CHIEF BALLISTICIAN John P. Werst

.

CHA	RGE	45.5 grs		Accommon	o Taur				BU	LLET Ba	11
2 4 6	E Alumi	101 mm	OBIECT	Acceptano R&DP	7-56					<del></del>	
, A :	)E <u></u> 30	11044	<del></del>		7-30						-
RI	MER_F	lem #39						REF. F	IDS. 8	- 55	
			SPEC:						A.P.30	T93E2 (1	
C.	10			BRE. NO.		TRFD.	***		40633	CHG.	45.6
		Univer	sal #9	BRL. NO.	R-51	TRFD.	630				
C.	NO. PA	Univer	as 1 #Q	BRL. NO.	G-67	TRFD.	845	V. V. P. V.	2748 F 45,400		
Ç.	10, 5	OHIVE	847 43	I BRL. NO.	G-07	TRED		ses dri		PS1	
	Ref		Dry	Wet		Re				ot	
	2736-		2711	2691	£	2718	45700		2690	44600	T
			2714	2693					2665	44600	
	2743		2755	2705	<u> </u>	2709	44500		2660	45000	<del></del>
	0751	ļ	2720	2742	<del></del>		46655	<del> </del>	2588	41300	<del>: </del>
—i	2751	<del> </del>	2728	2729	<del> </del>	2714	46600	<del></del>	2649	43700	+
	2748	<del> </del>	2729	2696 2710	<del> </del>	2600	42700	<del> </del>	2658	43400	+
$\dashv$	4/40	<del> </del>	2756 #	2710	<del> </del>	2698	43700	<del> </del>	2641 2636	42800 43600	+
	2739		2716	2695	<u> </u>	2717	44700		2675	44900	+
		<del> </del>	2717	2733	<del> </del>	4/./	77/00		2667	44000	_
	2747	1	2740	2713		2705	44300		2658	44200	
			2709	2706					2649	44200	
,	2753		2721	2761	4	2709	45400		2645	44100	<u> </u>
<b>6.</b>		ļ	2740	2695	<u> </u>		ļ		2661	45300	┿—
5.	2750	<u> </u>	2723	2713	ļ	2698	46000	ļ	2651	43600	<del></del>
6.	0760	<del> </del>	2712	<u> </u>	<del> </del>		4.44		2661	43600_	+
7.	2768 -	╄	2722	2741	<del> </del>	2716	46600	<b></b>	2634	42900	
8.	2745	<del> </del>	2735	2745 2753	<del> </del>	2692	44700		2673 2680	45000 44200	+
9. 0.	4173	<del>                                     </del>	2723	2709		2092	44700		2681	46400	,—
<del>~</del>	27480	Total	54510	54380		27076	452200	Total	53122	881400	+
		Mean	2726	2719	[	2708	45200	Mean	2656	44100	<u> </u>
		Vel.C	± 0	7.0				Pr.Cor.		<b>≠200</b>	
		C.Vel	2726	2719				Cor Pr.	ļ	44300	
-		Ex.Var.	53			26	2900	Ex.Var.	102	5100	<del> </del>
믖		S.D.	14						L		
πE	MARKS	altern	ated				Range #	3			
-	1.43.	41.6111			<del></del>	Dhron	ograph #				
	W	- D = -	7 FIS					7	-		
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		<del> </del>								<u>`</u>	
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			·						<del></del>	<del></del>	
				CHBOROGE	00 71	rk		6 51	702-02-	11	
	& PRIMER	S OK		CHRONOGRAPH GUNNER	McGuinn				-6-9		

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT\_ 5 Charge: 45.8 GALIBER 7.62mm FUNCTION AND CASUALTY TEST BULLET\_ Primer: Rem #39 CARTRIDGE\_Aluminum AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. F.A. GUN DATA Cold Normal Hot TYPE OF GUN HANGFIRE T-161E2 T-52 T-52 4 4 NO. OF GUN 10385 ROUNDS IN GUN 700 1000 NO OF BARREL 7793 700 1000 ROUNDS IN BARREL HEAD SPACE PIN PROTRUSION 308 300 ROUNDS FIRED 300 100-8 RDS. IN BURST OR CLIPS 100 100 3-1 NO. OF BURSTS OR CLIPS 3 Robinson Robinson Robinson GUNNER GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS 13 PRIMER LEAKS 169 PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION REMARKS: Bad Profile \* 1 Gas Eroded head with 1 S-J-K-L Case Split GM GAL. 30, B. M1917A1 R.U.S. CAL..30 M/903A3 GM CAL. 50 M3 AC PISTOL AUTO GAL. .45 MISHAI GM CAL. .60 TITE5 GM CAL. 30, B. A. C.

GSM GAL. . 45 M3\*M3A1 GM GAL. . 22 M3\*M4

GM GAL..50, B. M2 AG

GM CAL . 50, B. ME HB

GM CAL. 30, B. M/9/9A4

GM GAL. 30, B. M1919A6

R.A. CAL., 30, B. M1918 A2

RECORDER Seixas

R.U.S. CAL . 30 MI

FORENAN\_

GM GAL. .60 T59

GA 20 MM M24A1

GA 20 MM M3

\_CHIEF BALLISTICIAN...

GA GAL. .60/20 MK 12

W. O. \_\_ 51702-02-11 DATE FIRED 9 May 57\_

Charge: 45.8 grs Primer: Rem #39	FUNC	TION RÉ	4ND CAS DP No. 7-56	PROOF HOUSE WALTY TEST MATIC WEAPONS	PRIMER LOT
		Normal	GUN D	ATA Hot	Cold
TYPE OF GUN	HANGFIRE	T-52		т- 52	T-161E2
NO. OF GUN		4		4	5
ROUNDS IN GUN		200		400	10185
NO. OF BARREL		1		1	1
ROUNDS IN BARREL		200		400	7485
HEAD SPACE				-	-
PIN PROTRUSION		-		-	-
ROUN'S FIRED		200		200	200
RDS. IN BURST OR CLIPS	- 11	100		100	100
NO. OF BURSTS OR CLIPS		2		2	2
GUNNER		Robinson	L I	Robinson	Robinson
GROUP (MS) ZERO (MS)			GUN FUNC		
			DEFECTS	•	
201450 15150		r	I	1 133	17
PRIMER LEAKS					
PRIMER PERFORATIONS			<del></del>		
LOOSE PRIMERS  CASE SPLITS				<del></del>	
persons Eroded Hea	ad .		<del></del>	1	
STRETCHES			f		···
GAS FLASHES		<del></del>			
PAS I LASILES			····· <del></del>		
RREECH ELAMES					
BREECH FLAMES					1
BREECH FLAMES BREECH SPARKS AMM. FUNCTION		OK		·	

R.A. GAL..30, B. M1918 A2 R.U.S. GAL..30 M1 GM GAL..50, B. M2 AC GM GAL. . 50, B. ME HB RECORDER\_\_\_ CHIEF BALLISTICIAN\_ FOREMAN.

GM CAL. 30, B. M1917A1

GM CAL. 30, B. M/9/9A4

GM CAL. 30, B. M1919A6

GM GAL. .30, B. A. G.

GM CAL. .60 T59 GA CAL. .60/20 MK 12 GA 20 MM M3 GA 20 MM M24A1

6M GAL. .50 M3 AG

GM GAL. GO TITES

51702-02-11 DATE FIRED 9 MEY 5

ARMY-PARITAN ARSENAL (MMPC). METUCHEN. MI-80-807 :

R.U.S. CAL..30 M/903A3

GSM CAL. . 45 M3 · M3AI

GM CAL..22 M3-M4

PISTOL AUTO GAL. .45 MISHAI

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT\_ Charge: 45.8 grs CALIBER 7.62mm FUNCTION AND CASUALTY TEST BULLET Primer: Rem #39 R&D P 7-56 CARTRIDGE Aluminum AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. P.A. GUN DATA Cold Normal Hot TYPE OF GUN HANGFIRE T-48 T-48 T-48 4197 NO. OF GUN 4197 4197 6119 ROUNDS IN GUN 6319 6519 NO OF BARREL 1 6119 6319 6519 ROUNDS IN BARREL 2.183" HEAD SWAST Br. 2.183" 2.183" PIN PROTRUSION .063" .063" .063" ROUNDS FIRED 200 200 200 20 ROS. IN BURST OR CLIPS 20 20 NO. OF BURSTS OR CLIPS 10 10 10 GUNNER Robinson Robinson Robinson GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS 65 PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION Bad Profile Cases REMARKS: \_\_

GM CAL. 30, B. M/9/7A/ GM CAL. 30, B. A. C. GM CAL. 30, B. M/9/9A4 GM CAL. 30, B. M/9/9A6 R.A. CAL. 30, B. M/9/8A2 R.U.S. CAL. 30 M/

FOREMAN ....

R.U.S. GAL..30 M1903A3 PISTOL AUTO CAL..45 M1911A1 GSM CAL..45 M3-M3A1

GSM CAL. 45 M3-M3AI GM CAL. 60 T59
GM CAL. 22 M3-M4 GA CAL. 60/20 MK 12
GM CAL. 50, B. M2 AC GA 20 MM M3
GM CAL. 50, B. M2 HB GA 20 MM M24AI

\_ CHIEF BALLISTICIAN\_

RECORDER\_\_\_\_Seixas

W. O. 51702-02-11 DATE FIRED 9 May 57

GM GAL. 50 M3 AG

GM CAL. 60 TITES

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NAPC), METULHEN, NJ-56-367

Powder: UC 846
Charge: 45.8 grs
Primer: Rem #39

### FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R&D P No. 7-56

WEAPONS HEE

PRIMER LOT

AMM'N. LOT 5

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

PIN PROTRUSION         .048"           ROUNDS FIRED         200           RDS. IN BURST OR CLIPS         20           NO. OF BURSTS OR CLIPS         10	Hot T-44 1355 5480 1 5480 2.186" .048" 200 20 10 binson	568 2.18	44 55 80 1 80 86'' 48'' 0 0
NO. OF GUN  ROUNDS IN GUN  NO. OF BARREL  ROUNDS IN BARREL  FROUNDS IN BARREL  HEAD SPACE  PIN PROTRUSION  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FOR GLIPS  NO. OF BURSTS OR GLIPS  GUN FUNCTION  GROUP (MS)  ZERO (MS)  ZERO (MS)  COSE PRIMERS  GASE SPLITS  RUPTURE  STRETCHES  GAS FLASHES  BREECH SPARKS  AMM. FUNCTION  1 1355  1 1	1355 5480 1 5480 2.186" .048" 200 20 10 binson	133 568 568 2.18 .04 200 200	55 80 1 80 86" 48" 0
ROUNDS IN GUN  ROUNDS IN GUN  NO OF BARREL  RROUNDS IN BARREL  FROUNDS IN BARREL  S280  MEAD SPACE  PIN PROTRUSION  ROUNDS FIREO  ROUNDS FIREO  ROUNDS IN BURST OR CLIPS  NO OF BURSTS OR GLIPS  GUN FUNCTION  GROUP (MS)  REFO (#\$)  PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS  GUS FLASHES  GREECH FLAMES  GREECH SPARKS  AMM. FUNCTION  OK	5480 1 5480 2.186" .048" 200 20 10 binson	133 568 568 2.18 .04 200 200	55 80 1 80 86" 48" 0
ROUNDS IN GUN  ROUNDS IN BARREL  ROUNDS IN BARREL  ROUNDS IN BARREL  ROUNDS IN BARREL  PIN PROTRUSION  ROUNDS FIREO  ROUNDS FIREO  ROUNDS FIREO  ROUNDS FOR GLIPS  ROUNDS FOR	5480 1 5480 2.186" .048" 200 20 10 binson	568 568 2.18 .02 200 20	80 1 80 86'' 48'' 0
INDUNDS IN BARREL  INDUNDS IN BARREL  INDUNDS IN BARREL  INDUNDS FIRED  INDUNDS FIRED  INDUNDS FIRED  INDUNDS FIRED  INDUNDS FOR GLIPS  INDUNDER  INDUNDER  ROBINSTS OR GLIPS  INDUNDER  ROBINSON  ROUP (MS)  FRO (MS)  FRO (MS)  INDUNDER  INTRETGRES  AS FLASHES  INTRETCHES  AS FLASHES  INTRECCH FLAMES  INTRECCH SPARKS	1 5480 2.186" .048" 200 20 10 binson	2.18 .04 200 .20	1 80 86'' 48'' 0
TOUNDS IN BARREL  SOUNDS IN BARREL  FOUNDS FIRED  FOUNDS FIRED  FOUNDS FIRED  FOUNDS FORED  FOUNDS FOUNDS	5480 2.186" .048" 200 20 10 binson	568 2.18 .04 200 -20	80 86" 48" 0
RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS AS FLASHES REEGH SPARKS MM. FUNCTION  2.186"  2.186"  2.00	2.186" .048" 200 20 10 binson	2.18 .04 200 20	86" 48" 0 0
IN PROTRUSION .Q48"  OUNDS FIRED 200  DS. IN BURST OR GLIPS 20  O OF BURSTS OR GLIPS 10  UNNER ROBINSON RO  GUN FUNCTION  ROUP (MS)  FRO (#S'  DEFECTS  RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETCHES AS FLASHES REEGH SPARKS MM. FUNCTION OK	.048" 200 20 10 binson	.04 200 20 10	48" 0 0
OUNDS FIRED  OS. IN BURST OR CLIPS  O. OF BURSTS OR CLIPS  OUNNER  ROBINSON  ROUP (MS)  FRO (#S'  DEFECTS  RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETCHES AS FLASHES REEGH FLAMES REEGH SPARKS MM. FUNCTION  OK	200 20 10 binson	200 20 10	0
OS. IN BURST OR CLIPS O OF BURSTS OR CLIPS O OF BURSTS OR CLIPS UNNER  ROUP (MS) FRO (#S'  DEFECTS  RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETCHES AS FLASHES REEGH FLAMES REEGH SPARKS MM. FUNCTION  OOK	20 10 binson	20	0
O OF BURSTS OR CLIPS  UNNER  ROBINSON  ROUP (MS)  FRO (#S'  DEFECTS  RIMER LEAKS RIMER PERFORATIONS  OOSE PRIMERS  ASE SPLITS  UPTURE  TRETCHES  AS FLASHES  REECH FLAMES  REECH SPARKS  MM. FUNCTION  ROBINSON  REECH SPARKS  MM. FUNCTION  OK	10 binson		Ŏ
ROUP (MS) FRO (#S')  RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETGHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION  ROUP (MS)  BUT UNIT (MS)  COUP (M	binson		
GUN FUNCTION  ROUP (MS) ERO (#S'  DEFECTS  RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETGHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK		Kobit	nson
ROUP (MS)  ERO (MS)  DEFECTS  RIMER LEAKS  RIMER PERFORATIONS  OOSE PRIMERS  ASE SPLITS  UPTURE  TRETGHES  AS FLASHES  REECH FLAMES  REECH SPARKS  MM. FUNCTION  OK	82		
RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETGHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK	82		
RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETGHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK	82		<u> </u>
RIMER LEAKS RIMER PERFORATIONS OOSE PRIMERS ASE SPLITS UPTURE TRETCHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK	82	<u> </u>	
RIMER PERFORATIONS  OOSE PRIMERS  ASE SPLITS  UPTURE  TRETCHES  AS FLASHES  REECH FLAMES  REECH SPARKS  MM. FUNCTION  OK	82	.	
RIMER PERFORATIONS  DOSE PRIMERS  ASE SPLITS  UPTURE  TRETCHES  AS FLASHES  REECH FLAMES  REECH SPARKS  MM. FUNCTION  OK			
OOSE PRIMERS  ASE SPLITS  UPTURE  TRETCHES  AS FLASHES  REECH FLAMES  REECH SPARKS  MM. FUNCTION  OK			
ASE SPLITS UPTURE TRETCHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK			
UPTURE TRETCHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK			
TRETCHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK			
AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION OK			
REECH FLAMES REECH SPARKS MM. FUNCTION OK			
REECH SPARKS MM. FUNCTION OK			
MM. FUNCTION OK			
			OK
M GAL. 30, B. MI9I7AI R.U.S. GAL. 30 MI903A3 M GAL. 30, B. A. G. PISTOL AUTO GAL. 45 MI9IIAI M GAL. 30, B. MI9I9A4 GSM GAL. 45 M3-M3AI M GAL. 30, B. MI9I9A6 GM GAL. 22 M3-M4	GM CAL GM CAL GA CAL	60 T59 60/20 MK 12	,
.A. CAL30, B. M1918A2 GM CAL50, B. M2 AC .U.S CAL30 M1 GM CAL50, B. M2 HB RECORDER Seixas W.O.	GA 20 MM GA 20 MM 51702-02-	W24AI	RED 9 May 57
FOREMANCHIEF BALLISTIC			

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT 5 CALIBER 7.62mm Charge: 45.8 grs FUNCTION AND CASUALTY TEST BULLET\_\_\_ CARTRIDGE Aluminum Primer: Rem #39 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. F.A. GUN DATA Normal Hot Cold TYPE OF GUN HANGFIRE Hangfire Hangfire Hangfire 793759 793759 793759 NO. OF GUN 15510 15110 ROUNDS IN GUN 15310 B-4 NO OF BARREL B-4 B-4 500 ROUNDS IN BARREL 900 700 2.184" 2.184" HEAD SEMPEN Br. 2.184" .061" PIN PROTRUSION .061" .061" 200 ROUNDS FIRED 200 200 50 ROS. IN BURST OR CLIPS 50 50 \_4 4 NO. OF BURSTS OR CLIPS 4 Reynolds GUNNER Reynolds Reynolds GUN FUNCTION GROUP (MS) .4 .4 1.0 .4 10.9 ZERO (MS) 10.9 DEFECTS Primer Leaks-Small 34 PRIMER LEAKS-Large 69 PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS AMRIMER Blown Prime SERREPORER Gas Eroded Heads 16 GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION Bad Profile Cases REMARKS:

GM CAL. 30, B. M1917A1 GM CAL. 30, B. A. C. GM CAL. 30, B. M1919A4 GM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918A2 R.U.S. CAL. 30 M1

FOREMAN-

R.U.S. GAL..30 MI903A3
PISTOL AUTO GAL..45 MI9IIAI
GSM GAL..45 M3-M3AI
GM GAL..22 M3-M4

GM GAL..50, B. M2 AC

GM GAL . 50, 8. M2 HB

GM CAL. .60 T59 GA CAL. .60/20 MK 12 GA 20 MM M3 GA 20 MM M2441

GM GAL. .50 M3 AC

GM CAL. .60 TITES

RECORDER \_\_\_\_ Pantano - Seixas

W. O. 51702-02-11 DATE FIRED 9 May 57

\_\_\_ CHIEF BALLISTIGIAN\_\_

Powder: WC 846

Charge: 45.5 grs

Primer: Rem #39

#### FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT\_AMM'N. LOT\_6

GALIBER 7.62mm

BULLET\_GARTRIOGE Aluminum

MFG. F.A.

ARMY-BARITAN ARRENAL (MMPC). METUCKEN. MJ-88-387

TYPE OF GUN	· · · · · · · · · · · · · · · · · · ·	Normal	GUN	DATA		L		•
	1			<i>D</i>	Hot	Cold		Normal
	1	11 - 2 - 10 - 10 - 1		T			<del>- T</del>	
NO. OF GUN	HANGFIRE	T-161	1		T-161	T-161	l	T-161
		5	. [		5	5		5
ROUNDS IN GUN		17385		1	16985	16385		17510
NO OF BARREL		2			2	2		2
ROUNDS IN BARREL		9393			8993	8393		9518
YEAD SAMES Br.		-			-			
PIN PROTRUSION		-			-	,		
ROUNDS FIRED		400			.600	600		125
PDS. IN BURST OR CLIPS	Ĭ	100		<u> </u>	100	100		100-25
VO. OF BURSTS OR CLIPS	1	4			6	6		1-1
UNNER		Robinson			Robinson	Robinso	n	Robinso
		•	GUN FU	NCTION				
			0010 10	1011011				
ROUP (MS)								
ERO (MS)							LL	
			DEFEC	TS				
Blown Primer			52,20		3	<b></b>		
PRIMER LEAKS		2			120	10		1_1_
PRIMER PERFORATIONS				1				
LOOSE PRIMERS								
CASE SPLITS						I-K-L.S-	J-K-L	
RUPTURE		25(K)		_	16			
и водения Gas Eroded	Head	1				2		
GAS FLASHES					J			
BREEGH FLAMES						<u> </u>		
BREECH SPARKS				ļ		ļ. <u></u>		
AMM. FUNCTION	<u> </u>	<u> </u>		<u> </u>	<u></u>	<u> </u>	Bad Pr	<del>-2/1</del>
REMARKS Goo	d Work						Bac Pr	DILLE
							<del> </del>	
SM GAL. 30, 8. M1917A1		R.U.S.	AL. 30 M190	3 A 3	GM G	AL50 A	I3 AG	
M CAL. 30, B. A. C.		PISTOL	AUTO GAL.	45 M1911A1	GM G	AL. 60 T	17E5	
M GAL. 30, B. M/9/9A4	,	GSM GA	L .45 M3-M3	A1	GM C	AL 60 T	59	
M CAL. 30, B. M1919A6			22 M3·M4		GA C	AL60/2	20 MK 12	
			50, B. M2 A	c	GA 2	0 MM M3		
R.A. CAL30,8. MISIBAZ R.U.S. GAL30 MI BECORDER Seix			50, 8. M2 H	9		O M M M 24		
Seiv	as		•		w. o. <u>51702</u> -	-02-11	DATE FIRE	016 May 57
RECORDER								

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT\_6 45.5 grs CALIBER 7.62mm Charge: AND CASUALTY TEST FUNCTION BULLET\_\_\_ Primer: Rem #39 CARTRIDGE Aluminum AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. F.A. GUN DATA Normal Hot Cold TYPE OF GUN HANGFIRE T-44 T-44 T-44 1355 NO. OF GUN 1355 1355 ROUNDS IN GUN 6280 6080 5880 NO OF BARREL 6280 6080 5880 ROUNDS IN BARREL HEAD SAXXX Br. 2.186" 2.186" 2.186" .048" .048" .048" PIN PROTRUSION ROUNDS FIRED 200 200 200 20 RDS. IN BURST OR CLIPS 20 20 10 10 10\_ NO. OF BURSTS OR CLIPS GUNNER Robinson Robinson Robinson GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS Gas Eroded Head 34 PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREEGH FLAMES BREECH SPARKS AMM. FUNCTION REMARKS: \_ Bad Profile

FOREMA'N\_

R.U.S. CAL..30 M1903A3 PISTOL AUTO CAL..45 M1911A1 GSM CAL..45 M3-M3A1

GM CAL..22 M3 M4 GM CAL..50, B. M2 AC GM CAL..50, B. M2 H8 GM GAL. .50 M3 AG GM GAL. .60 TITES GM GAL. .60 T59 GA GAL. .60/20 MK 12 GA 20 MM M3 GA 20 MM M24AI

W. O. 51702-02-11 DATE FIRED8 May 57

\_ CHIEF BALLISTICIAN...

Powder: WC 846

Charge: 45.5 grs.

Primer: Rem #39

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST RDP No. 7-56

PRIMER LOT\_AMM'N. LOT\_6
GALIBER\_7.62 mm
BULLET\_CARTRIDGEAluminum
MFG,\_F.A.

Filmel: Rem 737	AUTOM	ATIC &	SEMI-AU		WEAPONS	MFG. F.A.	
	<del> </del>	Normal	GUN	DATA	Hot	Cold	
TYPE OF GUN	HANGFIRE	T-48			T-48	T-48	
NO. OF GUN		4197			4197	4197	
ROUNDS IN GUN		6819			6719	7119	
NO. OF BARREL		11			1	1	
ROUNDS IN BARREL		6819			6719	/119	
HEAD SPACE		2.183"		<u></u>	2.183"	2.183"	
PIN PROTRUSION		.063"			.063"	.063"	
ROUNDS FIRED		100		<b></b>	100	100	
RDS. IN BURST OR GLIPS		20			20	20	
NO. OF BURSTS OR CLIPS		5			5	5	
GUNNER	Į	Robinson	1	<u> </u>	Robinson	Robinson	
			GUN FU	NCTION			
GROUP (MS)							I
ZERO (MS)					<u>.LL.</u>	<u>.L ll.</u>	
			DEFEG	T5			
PRIMER LEAKS					5		
PRIMER PERFORATIONS							
LOOSE PRIMERS							
CASE SPLITS							
RUPTURE		<u> </u>	ļ	J			
STRETCHES	<u> </u>	<u> </u>			<u> </u>		
GAS FLASHES			_		1		
BREECH FLAMES		<u> </u>					
BREECH SPARKS	<u> </u>	<u></u>					
AMM. FUNGTION	Work	OK		.l <u></u>	<u>.L.,,, L.,</u>	OK	
REMARKS Good							
M GAL 30, 8. M1917A1		R.U.S. G	AL30 M190	JAJ	GM CAL.	50 M3 AG	
SM GAL. 30, B. A. G.			AUTO GAL.		GM GAL		
M CAL. 30, B. M1919A4	•	GSM GA	L45 M3-M3	AI	GM GAL.		
M CAL. 30, B. M1919A6			22 M3-M4			60/20 MK 12	
9. A. GAL30, B. MI918 A2	•		.50, B. M2 A		GA 20 MM		
9.U.S. CAL30 MI		GM GAL.	.50, B. M2 H		6A 20 MM		_
RECORDER Seix	A8	<del></del>			w. o. <u>51702-02</u>	-11 DATE FIRED . 8. MI	<b>y</b> _5
FOREMAN.		<del>,</del>	c.	HIEF BALL	STICIAN	<u>.</u>	

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT 6
CALIBER 7.62mm Charge: 45.5 grs FUNCTION AND CASUALTY TEST BULLET\_ CARTRIDGE Aluminum RDP No. 7-56 Primer: Rem #39 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. Y.A. GUN DATA Normal Hot Cold TYPE OF GUN HANGFIRE T-48 T-48 T-48 NO. OF GUN 4197 4197 4197 ROUNDS IN GUN 6919 6619 7019 NO. OF BARREL 7019 6919 6619 ROUNDS IN BARREL HEAD SREEK Br. 2.183" 2.183" 2.183" .063" .063" PIN PROTRUSION .063" ROUNDS FIRED 100. 100 100 RDS. IN BURST OR CLIPS 20 20 20 NO. OF BURSTS OR CLIPS Robinson Robinson Robinson GUNNER GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS DK OK AMM. FUNCTION REMARKS Bad Profile GM CAL. 30, B. M1917A1 GM GAL. .50 M3 AC R.U.S. CAL. 30 M/903A3 GM CAL. .30, B. A. C. PISTOL AUTO GAL. .45 MISHAI GM CAL. .60 TITES GM CAL. . 60 T59 GSM GAL. . 45 M3-M3A1 GM GAL. 30, B. M/9/9A4 GA CAL . 60/20 MK 12 GM GAL .. 22 M3-M4 GM CAL. 30, B. M1919A6 R.A. GAL. .30, B. MI918 A2 GM GAL..50, B. ME AG GA 20 MM M3 6A 20 MM M24AI 51702-02-11 DATE FIRED 8 May 57 GM GAL . 50, B. M2 HB R.U.S. CAL . . 30 MI Seixas RECORDER\_

CHIEF BALLISTICIAN...

ARMY-RARITAM ARSENAL (NMPC), METUCHEN, NJ.58-387

FOREMAN\_

Powder: MC 846 PRIMER LOT. FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT 6 GALIBER 7.62mm Charge: 45.5 grs FUNCTION AND CASUALTY TEST BULLET\_\_\_ CARTRIDGE Aluminum Primer: Rem #39 RDP# 7-56 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG.\_ T-65 Cun GUN DATA Normal Cold Hot TYPE OF GUN HANGFIRE Hangfire Hangfire 793756 17010 793756 NO. OF GUN 793756 16610 16810 ROUNDS IN GUN NO. OF BARREL B-4 B-4 B-6 ROUNDS IN BARREL 1700 1900 200 2.186" HEAD SENSE Br. 2.184" 2.184 .061" .061" PIN PROTRUSION .061" ROUNDS FIRED 200, 200 200 5Ò. RDS. IN BURST OR GLIPS 50· 50 NO. OF BURSTS OR CLIPS Pantano Pantano antano GUNNER GUN FUNCTION GROUP (MS) 11. ZERO (MS) DEFECTS Blown Primer PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS 8ĸ 1K GASE SPLITS RUPTURE 8 SOMEOCHES Gas Eroded Head 1 GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION REMARKS: Good Work Requirements: Cal .30, Dall 112 Shall not exceed 2.5 milliseconds GM CAL. SO M3 AC GM CAL. 30, B. M1917A1 R.U.S. GAL. 30 M/903A3 GM CAL. . SO TITES GM CAL. .30, B. A. C. PISTOL AUTO GAL. .45 MISHAI GM CAL. . 60 T59 GM GAL. 30, B. M1919A4 GSM CAL. . 45 M3 M3AI

GA GAL. . 60/20 MK 12

H. A. Fala

W.O. \_\_51702-02-11 DATE FIRED \_27 MAY 57

ARMY-RARITAR ARSENAL (MMPC), METUCHEN, NJ-58-367 /

GA 20 MM M3 GA 20 MM M24AI

Langer - Seixas

GM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918A2

R.U.S. GAL . . 30 MI

RECORDER.

FOREMAN-

GM GAL .. 22 M3-M4

GM GAL . . 50, B. M2 AG

GM GAL. .50, B. M2 HB

Asst. CHIEF BALLISTICIAN\_

Powder: WC 846 Charge: 45.8 grs Primer: Rem #39

#### FRANKFORD ARSENAL PROOF HOUSE

### FUNCTION AND CASUALTY TEST RDP No. 7-56 AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT.	
AMM'N. LOT_	7
CALIBER_7.	62
BULLET	
CARTRIDGE AL	uminum
MFG. TA	

ARMY-RARITAN ARSENAL (HMPC), METUCHEN, NJ-58-387;

		Normal	GUN Normal	DATA	Hot	Hot	Cold	Cold
TYPE OF GUN	HANGFIRE	T-161	T-161		T-161	T-52	T-161	T-52
NO. OF GUN		5	5		5	4	5.	4
ROUNDS IN GUN		18010	18610		19610	2200	19110	1600
VO. OF BARREL		2	1		1	1	1	1
ROUNDS IN BARREL		6425	6885		7885	2200	7385	1600
YEAD SPACE		-	-		-	-	-	•
PIN PROTRUSION		_			-	-	-	•
ROUNDS FIRED		500	600		500	600	500	600
POS. IN BURST OR CLIPS		100	100		100	100	100	100
O. OF BURSTS OR CLIPS		5	6		5	6	5	6
UNNER		Robinson	Robinson		Robinson	Robinson	Robinson	Robinso
1		<del></del>	GUN FU	NCTION				
				1071011		<del>,</del>	<del>,</del>	
ROUP (MS)		ļ	<u> </u>	<u> </u>	<del></del>		<del>                                     </del>	
ERO (MS)		ll_	<u> </u>	<u> </u>	<u>i</u>	<u>ii</u>	<u> </u>	<u></u>
			DEFEC	TS				
Gas Eroded Heads					4		<del></del>	
PRIMER LEAKS		12	18	ļ	160	222	20	21
PRIMER PERFORATIONS		<u> </u>	ļ	<u> </u>		1		
OOSE PRIMERS		ļ	ļ. <u>.</u>	<u> </u>				
ASE SPLITS		ļ						
RUPTURE		3-J:43-K			22-K	1-K	<b></b>	<u> </u>
Primer Pr	er		ļ		3	2		
AS FLASHES						Ļ		
REECH FLAMES		<b></b>	ļ	ļ		L		
REECH SPARKS		ļ					<u> </u>	
MM. FUNCTION		<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>	
REMARKS: Good 1	Work							
* Gun No. T161 No	. 5 Bar #:	2 out of s	ervice due	to erode	d chamber			
			L.30 M190.	3A3	GM C	AL .50 M3	AG	
M CAL. 30, B. M1917A1					CH C	A1 60 TIY	F.C	
M CAL30, B. A. G.		PISTOL .	AUTO GAL	45 M1911A1		AL . 60 TIT		
M GAL. 30, B. A. G. M GAL. 30, B. M1919A4		PISTOL . GSM CAL	AUTO GAL .,4 <b>5 m3-m3</b>	45 M1911A1	GM C	AL60 755	1	
M GAL. 30, B.A.G. M GAL. 30, B. M1919A4 M GAL. 30, B. M1919A6		PISTOL . GSM CAL GM CAL	AUTO GAL 45 M3-M3 .22 M3-M4	45 M1911A1 A1	GM C GA C	AL60 T55 AL60/20	1	
M GAL. 30, B. A. G. M GAL. 30, B. M1919A4		PISTOL . GSM GAL GM GAL	AUTO GAL .,4 <b>5 m3-m3</b>	45 M1911A1 A1 C	GM C GA C GA 2	AL60 755	MK 12	

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT\_ Charge: 45.8 grs GALIBER 7.62 FUNCTION AND CASUALTY TEST
RDP No. 7-56 BULLET\_ CARTRIDGE Aluminum Primer: Rem #39 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. TA T-65 GUN DATA Normal Cold Hot TYPE OF GUN HANGFIRE Hangfire Hangfire Hangfire 793756 NO. OF GUN 793756 793756 17610 ROUNDS IN GUN 17210 17410 B-6 B-7 NO OF BARREL 400 600 300 ROUNDS IN BARREL 2.186" HEAD SEREE Br. 2.186" 2.185" .065" 065" 065" PIN PROTRUSION 200 200 ROUNDS FIRED 200 RDS. IN BURST OR CLIPS 50. 50 50 NO. OF BURSTS OR CLIPS 4 Pantano Pantano Pantano GUNNER GUN FUNCTION .4 .5 .4 .4 .5 .4 GROUP (MS) 11.0 1.0 ZERO (MS) DEFECTS 13 Eroded Heads 91 PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS 6-K 1-K RUPTURE SPEEDENCE Blown Primers 3 GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION Good Work REMARKS:\_ 6M CAL. .50 M3 AG GM CAL .30, 8. M/9/7A/-R.U.S. CAL. 30 M/903A3 PISTOL AUTO GAL. .45 MISHAI GM GAL. . 60 TITES. GM GAL. 30, B. A. C. GM CAL. . 60 T59 GSM CAL. 45 M3-M3A1 GM CAL. 30, B. M/9/9A4 GA GAL. 60/20 MK 12 GM GAL.. 22 M3-M4 GM CAL. 30, B. M1919A6

R.A. CAL..30, B. M1918 A2

RECORDER Langer - Seixas

R.U.S. GAL . 30 MI

FOREMAN-

GM GAL . . 50, B. MR AC

GM CAL . . 50, B. M2 HB

GA 20 MM M3

CHIEF BALLISTICIAN...

GA 20 MM M24AI

W.O. 51702-02-11 DATE FIRED 27 MAY 57

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT 7 CALIBER 7.62mm Charge: 45.8 grs FUNCTION AND CASUALTY TEST BULLET.... CARTRIDGE Aluminum Primer: Rem #39 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. FA GUN DATA Hot Cold Norma I TYPE OF GUN T-44 T-44 T-44 HANGFIRE 1355 1355 1355 NO. OF GUN 6780 6480 6680 ROUNDS IN GUN NO OF BARREL 6780 6480 6680 ROUNDS IN BARREL 2.187" 2.187" 2.187" HEAD SPAGE .051" .051" .051" PIN PROTRUSION 100 100 100 ROUNDS FIRED 20 20 20 ROS. IN BURST OR CLIPS 5\_ 5 5 NO. OF BURSTS OR CLIPS Robinson Robinson Robinson GUNNER GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS 25 PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION Bad Profile REMARKS: \_\_

GM GAL. 30, B. M1917A1 GM CAL. 30, B. A. C. GM CAL. 30, B. M1919A4 GM CAL. 30, B. M1919A5 R.A. CAL. 30, B. M1918A2 R.U.S. CAL. 30 M1

RECORDER\_\_\_

R.U.S. GAL..30 M1903A3 PISTOL AUTO GAL..45 M1911A1 GSM GAL..45 M3-M3A1

GM CAL..22 M3-M4 GM CAL..50, B. M2 AC GM CAL..50, B. M2 HB GM CAL. 50 M3 AC GM CAL. 60 TITES GM CAL. 60 T59 GA CAL. 60/20 MK 12 GA 20 MM M3 GA 20 MM M24AI

W.O. 51702-02-11 DATE FIRED 10 May 57

FOREMAN GHIEF BALLISTICIAN

Seixas

Powder: WC 846 Charge: 45.8 Primer: Rem #39

#### FRANKFORD ARSENAL PROOF HOUSE

### FUNCTION AND CASUALTY TEST RDP No. 7-56

BULLET .... CARTRIDGE Aluminum

	AUTOM	ATIC &	SEMI-AU	TOMATIC	WEAPONS	MFG. FA
			GUN	DATA		1
		Normal		77.7	Hot	Cold
TYPE OF GUN	HANGFIRE	T-48		Ī	T-48	T-48
NO OF GUN		4197		· · · · · · · · · · · · · · · · · · ·	4197	4197
ROUNDS IN GUN		7519			7219	7319
NO. OF BARREL		1			1	1
ROUNDS IN BARREL		7519	- 1		7219	7319
HEAD SRASE Br.		2.183"		1	2.183"	2.183"
PIN PROTRUSION		.061			.061"	.061''
ROUNDS FIRED		100	1		100	100
POS. IN BURST OR CLIPS		20.	1		20	20
VO. OF BURSTS OR GLIPS		55			5	5
GUNNER		Robinsor	1		Robinson	Robinson
			GUN FU	NCTION		
GROUP (MS)		1				
ERO (MS)			I - I		11	
			DEFEC	TS		
RIMER LEAKS	\	]	T. T			
PRIMER PERFORATIONS			1			
OOSE PRIMERS			· [ · · · · · · · · · · · · · · · · · ·			
ASE SPLITS		1	· ·	1	i	
RUPTURE			1		64 JK	
TRETCHES					T	
AS FLASHES		L				
REECH FLAMES		l	_ [			
REECH SPARKS						
AMM. FUNCTION		ÜK				ОК
REMARKS: Bad I	Profile					
			** *			
	. <u></u>					
					· · · · · · · · · · · · · · · · · · ·	
		<del></del>	·			
						_ <del></del>
M GAL 30, B M1917A1			CAL 30 M190.		GM GAL5	
M CAL30, B. A C.			AUTO GAL		GM CAL6	
M GAL. 30, B. M/9/9A4			L .45 M3 M3.	Al	GM CAL	
M CAL. 30, B. M1919A6			22 M3 M4			60/20 MK 12
P.A. CAL30, B. M1918 A2			50, B. M2 A		GA 20 MM	
7.U 5 CAL 30 MI		GM CAL	50, B. M2 HE		GAZOMM	
RECORDER Seixa	S				√ ∧ 51.702±0½±1	1 DATE FIRED 10 May 7
AECONDER	<del></del>				. O. <u> </u>	LE VAIE FIRE V AND MARY

Powder: WC 846 Charge: 45.8 grs.	FRAN	KFORD	ARSENA	L P	ROOF	- HOUS	E	AMM	ER LOT_	7
	FUNC	TION	AND CA		4 <i>LT</i>	TEST	-	ו נוום	BER7.	
Primer: Rem #39	AUTOM.	ATIC 8	SEMI-AUT		TIC	WEAPO	V <i>S</i>	GAR1 MFG.	F.A.	ıminum
		Normal	GUN	DAT	A	. Hot		<u></u>	Cold	
TYPE OF GUN	HANGFIRE	T-44				T-44			T-44	1
IQ. OF GUN		1355		j		1355			1355	<del></del>
COUNDS IN GUN		6880	•	1		6580		· · · -	6380	<del>†</del>
IO OF BARREL	-	1	-			1			1 1	4
		6880		1		6580	1		i .	+
COUNDS IN BABREL		2.187"		1		2.187			6380 2.187	1
IN PROTRUSION		.051"		1		.051	1	-	2.107	1
COUNDS FIRED		100		1		100_	ļ ·		. 100	† .
	··-	20	†	1 .		20			. 20	
O OF BURSTS OR CLIPS		5		1			· -		_ 5	
UNNER		Robinson	<del>-</del>	1		Robinson	<u> </u>		Robinso	
<u> </u>	<del> </del>	, Nobellook	GUN FUI	VCTI	ON	[ KODI (180)	<b>-</b>		KODIUSO	DI
ROUP (MS)			T T				Ţ	Ţ		T
ERO (M\$)								I		
			DEFEC	TS						
RIMER LEAKS			T			37	Γ			<del></del>
RIMER PERFORATIONS			_1	1			ĺ			-i
OOSE PRIMERS			II.							Ĭ.
ASE SPLITS							Ī			I
UPTURE			Ī		·					
TREZENES Folds						60				
AS FLASHES			[ ]				Ī			I
REECH FLAMES							!			1
REECH SPARKS										1
MM. FUNCTION		OK	_[	Ι					OK	
EMARKS Long Ca	rtridge.									
						-				
<del></del>										
<del></del>										
			<del></del>							

GM CAL. . 60 T59

GA 20 MW M3

\_ CHIEF BALLISTICIAN.....

GA 20 MM M24A1

GA CAL . 60/20 MK 12

W.O. 51702-02-11 DATE FIRED 10 May 57

ARMY BARITAN ARSENAL INSPCT METHOREN, NESSESSES

GSM GAL .45 M3 M3A/ GM GAL..22 M3 M4

GM CAL.,50, B. M2 AC

GM GAL . . 50, B. MR HB

SM GAL. 30, B. M1919A4

GM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918A2

Seixas

R.U.S. CAL. 30 MI

RECORDER\_\_\_\_

Powder: WC 846  Charge: 45.8 grs		KFORD STION							GAL	MER LOT_ N'N. LOT .IBER_7.67	7 ?mm	
Primer: Rem #39	ļ	-	RDP No	7-	56	-			CAR	TRIDGE A	lumir	um
· · · · · · · · · · · · · · · · · · ·	L											
		Normal		SUN	DAT	A	Н	ot		Cold	•	
=	HANGFIRE	T-48					T	-48		T-48		
NO. OF GUN		4197					4	197		4197		
ROUNDS IN GUN		7419					7	619		7719	ļ	
NO OF BARREL		11		<u></u>			_	_1		<u> </u>		
ROUNDS IN BARREL	l	7419					7	619		7719	<u> </u>	
HEAD SEACE Br	I .	2.183"					2	.183†		2,183"		
PIN PROTRUSION		.06 L'						.061		.061"	ļ	
ROUNDS FIRED		100					<b>.</b>	100		100	ļ <u>.</u>	
RDS. IN BURST OR CLIPS	1	20	1				<del></del>	20		20	ļ	
NO OF BURSTS OR CLIPS		5	.		.		<del> </del>	5		5	↓	
GUNNER	1	Robinson					Rob	inson		Robinson	<u> </u>	
			GUN	FU	NCT	ION						
GROUP (MS) ZERO (MS)												
			DE	FEC	<i>TS</i>							
PRIMER LEAKS	!	<u> </u>	1	<del></del>			T	12				
PRIMER PERFORATIONS	[		Ţ		1					l		
LOOSE PRIMERS	1	T										
CASE SPLITS		1									ļ	
RUPTURE		I			1				<del></del>			
STRETCHES	·	1	1		1						L	
GAS FLASHES		l									↓	
BREECH FLAMES		l			1					<u> </u>	<u> </u>	
BREECH SPARKS	1 .	1	1		1						↓	
ANN. FUNCTION	l,	OK	1		. <u> </u> _		<u> </u>			CK	<u>.ļ.,,,</u>	
REMARKS Luc.	Cartridge											
							-					
							· · · · · · · · · · · · · · · · · · ·					
	-											
												<del>-</del>
						—						
GM GAL 30, B M/9/74/		R.U.S. G	AL. 30	M190	343			GM CAL.	.50 M3	AG		
GM CAL. 30, B 4 C.		PISTOL				911 A I		GM CAL	.60 TI	7E5		
GM CAL. 30, 8 M/9/9/4	•	GSM CA	L . 45 A	N3 - M3	41			GM GAL.	60 75	9		
GM CAL. 30, 8 M1919A6		GM CAL.	.22 M	3 · M 4				GA GAL	.60/20	MK 12		
R.A. GAL . 30, 8 M1918 A2		GM CAL.			C			GA 20 M	M M3			
RUS GAL 30 MI		GM CAL	50, 8.	M2 H	В			6 A 20 M				
RECORDER Seixa	ıs						w. o. 🚅	1702-02	2-11 01	TE FIRED_	10 M	<u>ay 57</u>

\_\_\_\_\_ GHIEF BALLISTIGIAN\_

Powder: WC 846 Charge: 45.8 grs Rem #39 Primer:

#### FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST
RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

AMM'N. LOT 8
CALIBER 7.62 BULLET\_ CARTRIDGE Aluminum
MFG. F.A.

TYPE OF GUN HANGFIRE T-44  NO. OF GUN 1355 1355 1355  ROUNDS IN GUN 7281 7481 7680  NO. OF BARREL 1 1 1 1  ROUNDS IN BARREL 7281 7481 7680  MEAD PRINCE BT. 2.187" 2.187" 2.187"  PIN PROTRES ON			Norma1	GUN	DATA	Hot	Cold	
MO. OF GUN	TYPE OF GUN	HANGFIRE	T					
ROUNDS IN GUN   7281   7481   7680   NO. OF BARBEL   1   1   1   1   1   1   1   1   1				ļ <u> </u>				
### ### ### ### ### ### ### ### ### ##				<del> </del>	-		1355	
ROUNDS IN BARREL   7281			1	ļ. <b></b>		7481	7680	
### ### ### ### ### ### ### ### ### ##		ļ		<del> </del>				
PIN PROTRUSION   .051"   .05				ļ				
### ##################################				<del></del>				
### ROS. IN BURST OR GLIPS   20   20   20   20   20   20   20   2				<del> </del>				
### ##################################			T	<del> </del>		100		
GUNNER ROBINSON ROBINSON  GUN FUNCTION  GROUP (MS)  DEFECTS  PRIMER LEAKS 1 56  PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE GASE SPLITS GAS FLASHES GREECH FLAMES GREECH SPARKS AMM FUNCTION  GUN FUNCTION  Robinson  GUN FUNCTION  OK		ļ. ———		ļ	<del></del>			
GROUP (MS)  ZERO (MS)  DEFECTS  PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE STRETGHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION  OK		ļ <u>.</u>		<del> </del>	<del> </del>	<del></del>		
GROUP (MS)  DEFECTS  PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE STRETGHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM FUNCTION  OK	GUNNER	l	Kobinson	1		Robinson	Robinson	
PRIMER LEAKS  PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION  DEFECTS  1 56  1 1-J  STRETCHES GREECH SPARKS AMM. FUNCTION  OK				GUN F	UNCTION			
PRIMER LEAKS  PRIMER PERFORATIONS  LOOSE PRIMERS  GASE SPLITS  RUPTURE  STRETGHES  GAS FLASHES  BREEGH FLAMES  BREEGH SPARKS	GROUP (MS)		I. I	T T				
PRIMER LEAKS  PRIMER PERFORATIONS  LOOSE PRIMERS  GASE SPLITS  RUPTURE  STRETGHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM. FUNCTION  DEFECTS  1-J  STRETSHES  GREECH SPARKS  AMM. FUNCTION  OK								
PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM FUNCTION OK				DEFE	CTS			
LOOSE PRIMERS  GASE SPLITS  RUPTURE  STRETGHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM FUNCTION  OK	PRIMER LEAKS		1			56		
GASE SPLITS RUPTURE 1-J STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM FUNCTION OK	PRIMER PERFORATIONS			l				
RUPTURE  STRETGHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM. FUNCTION  OK	LOOSE PRIMERS							
STRETGHES  GAS FLASHES  BREEGH FLAMES  BREEGH SPARKS  AMM. FUNCTION  OK	CASE SPLITS							
GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM. FUNCTION  OK	RUPTURE			<u> </u>		1-J		
BREECH FLAMES BREECH SPARKS AMM. FUNCTION OK	STRETCHES			ļ				
BREECH SPARKS AMM. FUNCTION OK	GAS FLASHES							
AMM. FUNCTION OK	BREECH FLAMES		<u> </u>	ļ		<u> </u>		
	BREECH SPARKS		L	L				
REMARKS: Long Length		L		<u> </u>			OK	
	HE MARKS! LONG	Length						
	GM GAL .30, B. M1917A1							
SM CAL. 30, B. A. C. PISTOL AUTO GAL. 45 MIGHAI GM CAL. 60 TITES	SM GAL. 30, B. M/919A4		GSM CAL.	45 M5°M	JAI	UM CAL.	. 00 133	

GM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918 A2 R.U.S. CAL . . 30 MI RECORDER Seixas

GM GAL..22 M3-M4 GM CAL .. 50, B. M2 AC GM GAL . . 50, 8. M2 HB

GA GAL. .60/20 MK 12 GA 20 MM M3

GA 20 MM M24AI W. O. 51702-02-11 DATE FIRED 22 May 57

CHIEF BALLISTICIAN\_ FOREMAN.

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT \_\_ 8 Charge: 45.8 grs CALIBER 7.62 FUNCTION AND CASUALTY TEST
RDF No. 7-56 BULLET\_ Primer: Rem #39 CARTRIDGE Aluminum AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. T.A. GUN DATA Normal Hot Cold TYPE OF GUN HANGFIRE T-48 T-48 T-48 4124 4124 NO. OF GUN 4124 7470 7670 ROUNDS IN GUN 7370 NO OF RARREL 7370 7470 7670 ROUNDS IN BARREL HEAD SHAKE BY. 2.186" 2.186" 2.186" 053" 053¥ PIN PROTRUSION .053" ROUNDS FIRED 100 100 100 20 20 20 RDS. IN BURST OR GLIPS NO. OF BURSTS OR GLIPS Robinson Robinson Robinson GUNNER GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS 2-J RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS OK REMARKS: Long Length

GM CAL. 30, B. M/9/7A/ GM CAL. 30, B. A. C. GM GAL. 30, B. M/9/9A4 GM CAL. 30, B. M/9/9A6 R.A. CAL. 30, B. M/9/8A2 R.U.S. CAL. 30 M/

REGORDER ...

FOREMAN-

R.U.S. CAL..30 M1903A3
PISTOL AUTO CAL..45 M1911A1
GSM CAL..45 M3-M3A1
GM CAL..22 M3-M4

GN CAL. 60 759 GA CAL. 60/20 MK /2 GA 20 MM M3 GA 20 MM M24A/ W.O. 51702-02-11 DATE FIRED 22 MAY 57

GM CAL. 50 M3 AC

GM GAL. 60 TITES

GM CAL..30, B. M2 AC GM CAL..50, B. M2 HB

GHIEF BALLISTICIAN\_\_\_\_

Seixas

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FOREMAN-

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST RDP No. 7-56 AUTOMATIC B SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N LOT 8

CALIBER 7.62mm

BULLET.

CARTRIDGE Aluminum

MFG. F.A.

	AUTOMA	4//C a	SEMI-AUT	UMAIIU	WEAPONS	MFG. F.A.
		Normal	GUN	DATA	Hot	Cold
TYPE OF GUN	HANGFIRE	T-44			T-44	T-44
NO. OF GUN		1355			1355	1355
ROUNDS IN GUN	T	7381	1		7581	7780
NO OF BARREL		1	1 1		1	1
ROUNDS IN BARREL	l	7381			7581	7780
HEAD SEASE Br.		2.187"			2.187"	2.187"
PIN PROTRUSION		.051			.051"	.051"
ROUNDS FIRED	<u> </u>	100	-		100	100
ROS. IN BURST OR CLIPS		20			20	20
NO OF BURSTS OR CLIPS		5			5	5
GUNNER	<b>i</b> "1	Robinson	n		Robinson	Robinson
	<del></del> _		GUN FUN	CTION	11.004110011	INVVAIIBUILI
GROUP (MS)					T	<del></del>
ZERG (MS)					<del>  </del>	<del>                                     </del>
	*J		DEFECT	5	<u></u>	
PRIMER LEAKS		1			68	
PRIMER PERFORATIONS						
LOOSE PRIMERS						
GASE SPLITS						
RUPTURE						1-K
STRETCHES						
GAS FLASHES						
BREECH FLAMES						
BREECH SPARKS			7			
AMM. FUNCTION						
REMARKS: Bad Pro	rile					
GM CAL. 30, B. M/9/7A/	<del></del>		AL. 30 M/903		GM CAL	50 M3 AC
SM CAL30, B. A. C.			AUTO CAL 4		GM GAL	
M CAL. 30, B. M/9/9A4			L 45 M3-M3A	,		
M CAL. 30, B. M/9/9A6			22 M3-M4			60/20 MK 12
P.A. CAL. 30, B. M1918 A2			.50, B. M2 AC		GA 20 MM GA 20 MM	
9.U.S. GAL30 MI		OM UAL.	.50, B. M2 HB			
RECORDER Seixa			<del></del>		7. 0. <u>31144-44-</u> 1	1 DATE FIRED 22 May

\_GHIEF BALLISTICIAN...

Powder: WC 846 PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT\_ 8 Charge: 45.8 grs CALIBER 7.62 FUNCTION AND CASUALTY TEST BULLET\_ CARTRIDGE Aluminum RDP No. 7-56 Primer: Rem #39 AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. T.A. GUN DATA Normal Cold Hot TYPE OF GUN HANGFIRE T-48 T-48 T-48 T-48 4197 4124 4124 NO. OF GUN 4124 8059 7220 ROUNDS IN GUN 7570 7770 NO OF HARREL 8059 7220 7570 7770 ROUNDS IN BARREL 2.186" 2.183" HEAD SRAGE BY. 2,186" 2.186" .061 .053 .053" .053" PIN PROTRUSION 40 100 ROUNDS FIRED 60 100 RDS. IN BURST OR GLIPS 20 20 20 20 2 5 NO. OF BURSTS OR CLIPS 5 Robinson Robinson Robinson Robinson GUNNER GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS 1-K RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION Bad Profile REMARKS: \* Gun T-48 No. 4197 Test discontinued \_\_ Erodad chamber due to burn thru in case. GM CAL. 30, 8. M/9/7A/ R.U.S. CAL. 30 M/903A3 SM CAL. SO M3 AC GM CAL. .60 TITES PISTOL AUTO GAL. . 45 MISHAI GM CAL. .30, B. A. G. SH GAL. 30, B. M1919A4 GSM GAL. . 45 M3-113A1 GM CAL. . 60 T59 GM GAL., 22 M3-M4 GA GAL. .60/20 MK 12 GM GAL. 30,8. M1919A6 GA 20 MM M3 GM CAL. . 50, B. ME AG R.A. CAL..30, B. M1918 A2 51702-02-11 R.U.S. GAL. 30 MI

Seixas

RECORDER .... FOREMAN-

GM CAL . 50, B. ME HB

CHIEF BALLISTICIAN.

DATE FIRED 23 MAY 57

PRIMER LOT\_ FRANKFORD ARSENAL PROOF HOUSE AMM'N. LOT .... Powder: WC 846 GALIBER 7.62mm FUNCTION AND CASUALTY TEST BULLET CARTRIDGE Aluminum R.D.P. No. 7-56 Charge: 45.8 grs AUTOMATIC & SEMI-AUTOMATIC WEAPONS MFG. P.A. Primer: Rem #39 GUN DATA Cold Normal Hot Hangfire TYPE OF GUN HANGFIRE Hangfire 793756 NO. OF GUN 793756 793756 17810 18010 18210 ROUNDS IN GUN NO OF BARREL B-7 B-7 B-7 900 700 ROUNDS IN BARREL 500 HEAD SPACE Br. 2,185" 2.185" 2.185" .065" PIN PROTRUSION .065" .065" 200 200 ROUNDS FIRED 200 50 RDS. IN BURST OR CLIPS 50 50 NO. OF BURSTS OR CLIPS 4 4 4 Pantow GUNNER Pantow Pantow GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS Eroded Heads 11 117 PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS 1-J CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION | Good Work GM CAL. 30, B. M1917A1 R.U.S. CAL. 30 M1903A3 GM CAL. 50 M3 AC GM GAL. .30, B. A. C. PISTOL AUTO GAL. .45 MI9IIAI GM CAL. 60 TITES GM GAL. 30, B. M/9/9A4 GM CAL. .60 759 GSM CAL. . 45 M3 M3AI GM CAL. 30, B. M1919A6 GM GAL .. 22 M3 - M4 GA CAL. . 60/20 MK 12 R.A. CAL. 30,8. M1918 A2 GM GAL. 50, B. ME AC GA 20 MM 'M3 GA 20 MM M24AI GM GAL. .50, B. M2 HB R.U.S. GAL. 30 MI RECORDER Langer-Seixas W. O. 51702-02-11 DATE FIRED 20 May 57

\_ CHIEF BALLISTICIAN\_

FOREMAN....

Powder: WC 846

Charge: 45.8

Primer: Rem #39

## FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R.D.P. No. 7-56

PRIMER LOT\_AMM'N. LOT\_8
GALIBER\_7.52mm
BULLET\_CARTRIDGEAluminum
MEG F.A.

AUTOMA				WEAPONS	MFG. F.A.	
	Normal	GUN	DATA	Hot	Cold	
HANGFIRE	T-52			T- 52	T-52	
	4	1	† ····	4		
	2428			3028	2728	
	1			i	1	
	2428		1	3028	2728	
	-	1		1 - 1	- 1	
	-			-	_	
	228			300	300	
	100-28			100	100	
	2-1			3	3	
	Robinson			Robinson	Robinson	
		GUN FU	NCTION			
						$\Box$
	ll	_	<u> </u>	<u> </u>	<u> </u>	L_
		DEFEC	TS			
	26		1	198	42	
				1-22		
			1			
			- <del> </del>	†		
	1-K					
			T			
			1			
			1	1		
***************************************			1			
Work						
	······································					
			AI			
	GM GAL	50. B. M2 A	c	GA 20 MM	' M3	
xas		.50, B. ME H	8	6A 20 MM	M24AI 1 DATE FIRED 24 M	[a =
	HANGFIRE	AUTOMATIC &  Normal  HANGFIRE T-52  4  2428  1  2428  1  2428  100-28  2-1  Robinson  26  1-K  Work   HUS. G  FISTOL  GSM CAL  GW CAL	### AUTOMATIC & SEMI-AU    Normal   GUN     HANGFIRE   T-52       4	Normal   GUN DATA	Normal   GUN DATA   Hot	AUTOMATIC & SEMI-AUTOMATIC WEAPONS   CANTRIDERALWEIN   WFG. T.A.

Charge: 45.8  Primer: Rem #39	FUNC	TION	AND	G A	1 <i>SU</i>	4LT	F HOUSE Y TEST WEAPONS	5	PRIME AMM' GALIE BULLE GARTI MFG.	N L C DER T PIDGE	r_1 7.62 Ball Alum	mm inum	
				GUN	DAT	4			l	,			
TYPE OF GUN	HANGFIRE		T-1	1)1								•••	
NO. OF GUN			114		1.					-			
ROUNDS IN GUN			31.0	50									
NO OF BARREL													
ROUNDS IN BARREL			340	50									
MEND SPAGE B.S.			2.	186*									
PIN PROTRUSION				255"	1_								
ROUNDS FIRED			25				11						
RDS. IN BURST OR CLIPS			20 .	- 5									
NO. OF BURSTS OR CLIPS				- 1									
GUNNER			Rob	nson									
					NCTI	ON	- A						
COOUR (MA)				Γ	T - T		<del>,                                    </del>		T T				
GROUP (MS) ZERO (MS)	<del>  </del>		+	<b> </b>	+-+		╂┈┼┈		++				╨
ENO (MS)	<u> </u>	<u> </u>	DE	FEC	7 <i>5</i>		.4						
PRIMER LEAKS	1		7	1	T —		ТТ				—-т		
PRIMER PERFORATIONS	t		-	· · · · · ·	<del> </del>		1						
LOOSE PRIMERS					<del> </del>		<del> </del>				$\rightarrow$		
CASE SPLITS	<b></b>				<del> </del>		<del> </del>		<del></del>				
RUPTURE			+		<del> </del>	-	<del>                                     </del>						
STRETCHES			┪		<del> </del>		<del> </del>						
			<del></del> -		<del> </del>		<del>                                     </del>						
GAS FLASHES	<del> </del>		+		<del> </del>		<del>  </del> -						
BREECH FLAMES	ļ			rous			<del> </del>						
BREECH SPARKS	<del></del>			rous	<del> </del>		<del> </del>		<del></del>				
AMM. FUNCTION REMARKS: Hot F:	<u> </u>		<u> </u>		1		<u> </u>		<u></u>			<del></del>	
# 11 stoppages	s: 11 blo	m prime	s with	n gase	eroded	head	ds						
GM GAL. 30, B. M1917A1 GM GAL. 30, B. A. C.		R.U.S. O	AUTO	GAL	45 M19	'II A I	GM GAL	6	50 M3 /				
M CAL. 30, R. M/9/9A4		GSM CA			1/		GM CAL						
M CAL. 30, B. M1919A6		GM CAL							50/20 M	IK 12			
r. A. GAL30, B. M1918 A2	GM CAL50, B. M2 AC					GA 20 MM M3							
		CH - 4 .	60 -						410 4 4 4				
P.U.S. GAL 30 MI RECORDER Seixas		GN CAL.	.50, B. I	<b>4</b> 2 HB	•		6 <i>a 20 a</i> 0. <u>0. 83805<b>-1</b>0</u>		W24AI		70	Ve~	60

ARMY-RARITAN ARSENAL(RAPD).METUCHEN.HJ-52-1795

Powder: IMR 4475	
Lote 54	
Charge: 39.5	
Primer: Rem #39	
	<i>'</i>

FOREMAN.....

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST

John P. Werst

ARMY-BARITAN ARSENALIRAPOI.METUCHEN.NJ-52-1795

	AUTOMATIC	& SEMI-AUTOMAT	TIC WEAPONS	MFG. T.A.
		GUN DATA		
TYPE OF GUN	HANGFIRE	T-Jılı		
NO. OF GUN	<del> </del>	1491		
ROUNDS IN GUN	<del>                                     </del>	3505		
NO OF RARREL	<del>                                     </del>	1		
COUNDS IN BARREL	1	3505		
EDDOK SPACE B.S.	<del> </del>	2.186**		
PIN PROTRUSION		.055n		
ROUNDS FIRED	!	25		
RDS. IN BURST OR CLIPS	<del>                                     </del>	20 - 5		
VO. OF BURSTS OR CLIPS		1 - 1		
SUNNER	† · · · · · · · · · · · · · · · · · · ·	Robinson		
74/11(51)	· · · · · · · · · · · · · · · · · ·	GUN FUNCTIO	DN .	
GROUP (MS)				
TERO (MS)				
		DEFECTS		
PRIMER LEAKS		6		
PRIMER PERFORATIONS				
LOOSE PRIMERS	<u> </u>			
CASE SPLITS				
RUPTURE				
STRETCHES				
AS FLASHES				
BREECH FLAMES		numerous		
BREECH SPARKS		numerous		
AMM. FUNCTION		*		
REMARKS Lot F	iring:			
⊀ 6 stoppages	: 4 stoppages	- blown primers with	gaseroded heads	
	l stonnage .	- loose primer (permi	saible) with bla	w back of metel
		also a complete rin	shear	
	l stoppage -	Primer leak with a	complete rim shear	r
GM CAL. 30, B. M1917A1	R.U.	S. CAL. 30 M/903A3	GM CAL	50 M3 AC
M CAL. 30, B. A. C.		TOL AUTO CAL45 MI9	IAI GM CAL	60 TITES
M CAL. 30, B. M1919A4		CAL 45 M3 M3A/	GM CAL	60 759
M CAL. 30, 8, M/9/9A6	GM	CAL22 M3 · M4	GA GAL	60/20 MK 12
7. A. CAL. 30, B. MI918 AE		GAL50, B. M2 AG	GA 20 MM	/ M3
7.U.S. CAL. 30 MI	GM :	CAL. 50, B. M2 HB	GA 20 MM	
RECORDER Seixas			w.o83805-10-4	<u>01 uate fireo 8 Mar 58</u>

\_\_ CHIEF BALLISTICIAN\_

Powder:	WC 846
Charge:	45.8
Primer:	Rem #39

### FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST

PRIMER LOT.	
C. LIBER	
BULLET	Ball
CARTRIDGE	Aluminum
. MFG	F.A.

ARMY-RARITAN ARSENALIRAPD). METUCHEN MI 42 1704

	AUTOMATIC	SEMI-AUTOMATIC	WEADONE	CARTRIOGE Aluminum
	AUTUMATIC C	A SEINI AUTUMATTO	HEAPUNS	MFG. F.A.
•	•	GUN DATA		
TYPE OF GUN	HANGFIRE	T~52		
NO. OF GUN		10		
ROUNDS IN GUN		1093		
NO OF BARREL		2		
POUNDS IN BARREL		1093		
HEAD SPACE				
PIN PROTRUSION				
ROUNDS FIRED	<del>                      _     _</del>	50		
RDS. IN BURST OR CLIPS	L	50	<del>                                     </del>	
NO. OF BURSTS OR CLIPS		1	<del>                                     </del>	
GUNNER	<u> </u>	Robinson		
		GUN FUNCTION		
GROUP (MS)				
ZERO (MS)	<u> </u>		<u> </u>	
Primer leaks (gas	anoded heads)	DEFECTS		
PRIMER LEAKS		28		
PRIMER PERFORATIONS			1	
LOOSE PRIMERS	† <del>-</del>			
CASE SPLITS			<del>     </del>	
RUPTURE				
STRETCHES			<del> </del>	
GAS FLASHES			†	
BREECH FLAMES		Lumerous		
BREECH SPARKS		numerous		
AMM. FUNCTION		*		
REMARKS: Not F	iring:			
# 2 stoppages	: 1 loose primer	(permissible) with bl	ow back of me	tal and gas
	eroded head		and the second second	
	l blown primer	with gas eroded head		
	<del></del>			
GM CAL. 30, B. M1917A1		CAL30 M/903A3		SO M3 AC
GM GAL30, B. A. C.		L AUTO CAL. 45 MISIIAI	GM CAL	
GM GAL30, B. M1919A4		TAL .45 M3-M3AI	GM CAL	
SM CAL. 30, B. M1919A6		1L22 M3-M4		60/20 MK 12
R.A. CAL30, B. M1918 A2		L. 50, B. M2 AC	GA 20 MM	
R.U.S. GAL. 30 MI	GM CA	L50, B. M2 HB	<i>GA 20 MM</i> 8380510	
RECORDERSeixas			V. O. 03003-10-	Ol DATE FIRED 18 Mar
FOREM'AN		CHIEF BALLI	<i>stician</i> John	P. Werst

Povder: WC 846 Charge: 45.8 Primer: Rem#39	FUNC	TION	AND	CAS	GUALTY	HOUSE TEST WEAPON		AMM GALI BULL GART	8 E R	12-4-1 7-62-m Ball Almains
			GU	UN D	ATA					
TYPE OF GUN	HANGFIRE		т-1.1				,			
NO. OF GUN			149							
ROUNDS IN GUN			3040							
NO. OF BARREL			1							
ROUNDS IN BARREL			3040	5						
HEAD SPACE			2,18							
PIN PROTRUSION			•0!	55 <b>%</b>						
ROUNDS FIRED			60							
RDS. IN BURST OR CLIPS			20				,			
NO. OF BURSTS OR CLIPS			3							
GUNNER			Robin	nson		I				
			GUN	FUNC	TION					
GROUP (MS)										
ZERO (MS)	<u>L</u>	<u> </u>			1					
Primer leaks (gas e	roded head	is)	DEF	ECTS	5					
PRIMER LEAKS			21	i. I						
PRIMER PERFORATIONS LOOSE PRIMERS										
CASE SPLITS										
RUPTURE					1					
STRETCHES										
GAS FLASHES										
BREECH FLAMES			numero	นธ						
BREECH SPARKS			numero							
ANM. FUNCTION			*			i				
REMARKS: Hot Fi	ring:									
* 10 stoppages	3 stopp	ages - p	rimer le	aks w	ith gas e	roded head	d an	i com	olete	
		r	im shear	8						
	1 stopp					le) with l	olow	back	of me	tal
		<b>5</b>	nd gas e	roded	heads					
	2 stopp	a ges - b	lom pri	mers 1	rith gas	eroded he	ads a	and pa	artial	
· · · · · · · · · · · · · · · · · · ·			im shear							
	lstopp				th gas er	oded head	and	comp	lete_	
	~ · · · · · · · · · · · · · · · · · · ·	ri	m shear							
						eroded her				

GM GAL. .30, B. A. G.

GM CAL. .30, B. M/9/9A4

GM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918 A2

RECORDER\_ Seixas

R.U.S. GAL. 30 MI

PISTOL AUTO CAL. . 45 MISII AI

GSM GAL. , 45 M3-M3A1

GM CAL..22 M3-M4

GM GAL..50, B. M2 AG

GM GAL .. 50, 8. M2 H8

GM CAL. .60 TITES

GA CAL. . 60/20 MK 12

W. O. 83805-10-01 DATE FIRED 18 Mar 58

ARMY-RARITAN ARSUNAL(RAPD).METUCHEM, NJ-52-1795

GM CAL. .60 T59

GA 20 MM M3 GA 20 MM M24AI

\_ CHIEF BALLISTICIAN John P. Werst

P	wder	<b>.</b>
_	HES	5232.99
_C)	HT SE	39.5 Rem #39
	THAT	RUM #37

FOREMAN.

### FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST

PRIMER LOT

AMM'N. LOT 12-A-2

GALIBER 7.62mm

BULLET Ball

CARTRIDGE Aluminum

MFG. F.A.

	AUTOMAT	ic a	SEMI	-AUTOR	MATIC	WEAPON		GARTRID MF G.	ge Aluminum F.A.		
	<del>                                     </del>		G	GUN' DA	TA						
TYPE OF GUN	HANGFIRE		T-	<u>ոս</u>			T-52	,			
NO. OF GUN	<b> </b>		11,			+	10		<del></del>		
ROUNDS IN GUN	tt-		31	<u>10</u>		<del>                                     </del>	1129	<del>  </del>			
NO. OF BARREL			i			1	2	<b></b>			
ROUNDS IN BARREL			31			1	112				
HEAD SPACE	<del> </del>			186"		<del>                                     </del>		<del></del>			
PIN PROTRUSION				055"							
ROUNDS FIRED			60			1	32				
ROS. IN BURST OR CLIPS			20			1	32				
NO. OF BURSTS OR CLIPS			3			1	ī				
GUNNER			Robi	nson		IR	obins	ion			
T. R. 1 (1) (1) (1)	<del></del>			FUNC	TION	<u> </u>			<del></del>		
GROUP (MS)		$\Box$			1						
ZERO (MS)											
PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS		d heads)		2			15				
	<del> </del>		<del>   </del>	—— <u></u>		<del></del>					
RUPTURE STRETCHES	<del></del>					<del>                                     </del>					
GAS FLASHES	·								<del></del>		
BREECH FLAMES			numer	rous			numer	0110			
BREECH SPARKS			nume						<del></del> -		
AMM. FUNCTION	<del></del>		110110			numerous *					
REMARKS: Hot Firi * 1 stoppage		mer wi	th gas (	eroded h	ead						
GM CAL. 30, B. M1917A1 GM CAL. 30, B. A. C.			GAL30 AUTO	M1903A3 GAL45	W1911A1	GM CA.		M3 AG 717E5			
SM GAL. 30, B. M1919A4		GSM CA	4L 45 M	3 · M3A1		GM CA	L 60	T59			
M GAL. 30, B. M1919A6		GM GAL	22 <b>M3</b>	- M4		GA CA	L 60,	/20 MK	12		
9. A. GAL30, B. M1918 A2		GH CAL	50, B. A	W2 AC		GA 20					
R.U.S. CAL. 30 MI		GM GAL	50, B. A	12 HB		GA 20					
RECORDERSnixes							r. 0. 83805-10-01 DATE FIRED 18 Mar 5				

W.O. 83805-10-01 DATE FIRED 18 MAY 58 CHIEF BALLISTICIAN JOHN P. Werst

ARMT-RARITAN ARSENALIRAPDI.METUCHEN.NJ.52-1795

	AUTOM	ATIC &	SEMI-	AUTO			EST Apons	BULLET_ GARTRIDO MFG	Ball GE Alum F.A.	inım
		<del></del>	G	UN D	ATA			<b></b>		
TYPE OF GUN	HANGFIRE	<b>Τ-</b> հի					7-5	2		
NO. OF GUN		1491					10			
ROUNDS IN GUN		3170					116	0		
NO OF BARREL		1				<b>_</b>	2			
ROUNDS IN BARREL		3170	<b>_</b>			<del></del>	116	<u> </u>		
HEARX SPACE B.S.	ļ	2.186"	ļ			<b></b>				
PIN PROTRUSION		•055"	↓			<del> </del>				
ROUNDS FIRED	L.—	60	<u> </u>			<b></b>	35			
RDS. IN BURST OR CLIPS	···-	20	<del> </del>				35_			
NO. OF BURSTS OR CLIPS	<b></b>	3	<u> </u>			<b>_</b>	1			
GUNNER		Robinson				<u></u>	Robi	nson		
			GUN	FUN	CTION					
GROUP (MS)			T			I				]
ZERO (MS)	l				$\Box$	$\Gamma$				
PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS		25				<del> </del>	26			
blown primer	(was erod	ed head)				<b>†</b>	2			
STRETCHES	A CONT. DY AM	MA HUERLY	1			†				
GAS FLASHES			<del> </del> -			1				
BREECH FLAMES		numerous					מונמ	rous		
BREECH SPARKS		numerous				1		erous		
AMM. FUNCTION		*				<u> </u>		H		
REMARKS: Hot Fire	ngs			=						<del></del>
* 14 stoppages -	1 blown	primer wi				ow ba	ck of meta	al & bas	eroded	heads
M CAL. 30, B. M1917A1		R.U.S. CA					GM GAL5			
M CAL. 30, B. A. C.					MISIIAI		GM GAL6			
M CAL. 30, B. M1919A4		GSM GAL					GM CAL6			
		GM GAL	.22 M3	- M4			GA CAL6	U/20 MK I	2	
M GAL. 30, B. M1919A6				40 44				44.9		
M CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918A2		GM CAL	•				GA 20 MM			
M CAL. 30, B. M1919A6			•				<i>GA 20 MM</i> <i>GA 20 MM</i> 3805-10-0	M24AI	.aca10 **	۳0

ARMY-BARITAN ARSENALIRAPDI.METUCHEN.NJ-92-1795

Powder: HES 5232.99	FRANKFORD	ARSENAL PROOF HOUSE
Charge: 39.5 grs Primer: Rem #39		AND CASUALTY TEST
-	AUTOMATIC &	SEMI-AUTOMATIC WEAPONS

PRIMER	L07
AMM'N.	LOT 12-B-2
GALIBE	P. 7.62mm
	Rell
CARTRIE	OE Aluminum
MFG	F.A.

ARMY-RABITAN ARSENAL(HAPU), METUCHEN, NJ-92-1795

	AUTOMA	ATIC 8	SEMI-AU	TOMATIC	WEAPONS	_	GE Aluminum F.A.
	<del> </del>		GUN	DATA		<del> </del>	
TYPE OF GUN	HANGFIRE	T-իր			m_	52	
NO. OF GUN	<b>†</b>	1491		†···	10		
ROUNOS IN GUN	<u> </u>	3230	<u> </u>	<del></del>		07	
NO OF RARREL	1	1.		† · · · · · ·	2		
ROUNDS IN BARREL		3230				07	
YEAR SPACE B.S.	†	2.186	М	1			
PIN PROTRUSION		055					
ROUNDS FIRED	1	60		1	1.7		
PDS. IN BURST OR CLIPS	1	20		1	1.7		
NO. OF BURSTS OR GLIPS	I .	3			1 41		
GUNNER		Robinson	n l		Robi	ngon	
ECLICE ()	·		GUN FU	NCTION	u.obi		
GROUP (MS)							
ERO (MS)							
			DEFEC	<i>TS</i>			
PRIMER LEAKS	T			T	1	9	
PRIMER PERFORATIONS							
OOSE PRIMERS					1		
ASE SPLITS		_					
RUPTURE							
TRETCHES							
AS FLASHES							
BREECH FLAMES					num	rous	,
BREECH SPARKS							
AMM. FUNCTION		OK		1			
REMARKS Hot Fi							
M GAL 30, B M1917A1 M GAL 30, B A G M GAL 30, B M1919A4 M GAL 30, B M1919A6	•	PISTOL GSM GA	GAL.30 M1903 AUTO GAL. 1L.45 M3-M3. 22 M3-M4	45 M/9//A/	GM CAL5 GM CAL6 GM CAL6 GA CAL6	0 TITES 0 T59	18
P.A. GAL30, B. M1918 A2 P.U.S. GAL30 M1			50, B. M2 A	G	GA 2C MM	M3	
RECORDER Seixas		GM CAL	50, B. M2 HE	9 b	64 20 mm v. 083805-10-0a		'IRED 18 Mar 58

Powder: WC 8h6 Charge: h5.8 grs Primer: Rem #39	FUNC	KFORD STION .	AND	CASU	IALTY	TEST	6	PRIMER I NMM'N. I SALIBER OULLET SARTRIOS NFG	7.66 Ball Se Alu	ene L Lenu
	70,000			UN DA						
TYPE OF GUN	HANGFIRE	T-կկ				T T				
·		1491	<del> </del>				T-52	-		
NO. OF GUN		3290	<b></b>	-+			10			
ROUNDS IN GUN		1	1	-+			1247			
NO OF BARREL			<b></b>				2		+	
ROUNDS IN BARREL		3290	<b></b>				1247			
HEAD SPACE B.S.		2.186*	-							
PIN PROTRUSION		_055N	<b></b>							
ROUNDS FIRED		60	<u> </u>				مبل			
RDS. IN BURST OR CLIPS		_20	<b>↓</b>				40			
NO. OF BURSTS OR CLIPS		3	ļ <u>.</u>		,		1_			
GUNNER		Robinson	<u> </u>	1			Robins	on		
GROUP (MS) ZERO (MS)				FUNCT						
Primer leaks (gas en	coded head	) 10	DLI	2013						
PRIMER LEAKS		19					32			
PRIMER PERFORATIONS							-			
LOOSE PRIMERS										
GASE SPLITS			1							
RUPTURE										
STRETCHES										
GAS FLASHES			L							
BREECH FLAMES		numerous					numer o	118		
BREECH SPARKS										
AMM. PUNCTION		*		1_			*			
REMARKS: Hot Find	ng:									
BREECH SPARKS AMM. PUNCTION REMARKS: Hot Firi * 1 stoppage: 1			sible)	with b	low bac	<u> </u>				
** 8 stoppages:	blown prin	mers								

GM CAL. .30, B. A. C.

R.U.S. CAL. 30 MI RECORDER Seixas

FOREMAN....

GM GAL. 30, 8. M/9/9A4

GM GAL. 30, B. M1919A6 R.A. CAL..30, B. M1918A2 PISTOL AUTO GAL. .45 MISHAI

GSM GAL. .45 M3-M3A1 GM GAL..22 M3-M4

GM CAL..50, B. MR AG

GM GAL .. 50, 8. M2 HB

GM GAL. .60 TITE5 GM GAL. .60 T59

6A 20 MM M3

\_ GHIEF BALLISTIGIAN John P. Werst

6A 20 MM M24AI

GA GAL. .80/20 MK 12

W. 0.83805-10-01 DATE FIRED 18 Mar 58

ARMY-RARITAN ARSENALIRAPOLMETUCHSE.NJ-52-1795

Powder: WC 846 Charge: 45.8 grs Primer: Rem #39	FUNC	TION	AND	GA	SUA	1 <i>LTY</i>	HOUSE TEST WEAPONS	4	PRIMER AMM'N. L GALIBER BULLET GARTRIO WFG.	or 12. 7.0 Ba: SE Alur	52mm 11 ninum
11 100-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	<b>.</b>		(	GUN	DATA	4					
TYPE OF GUN	HANGFIRE	T-44						T-52	,		
NO. OF GUN		1491	1					10			
ROUNDS IN GUN	<u> </u>	3350						1267		I	
NO OF BARREL	<u> </u>	1						2			
ROUNDS IN BARREL		3350			L			1267			
DEMOKESPACE B.S.		2.186			<u> </u>						
PIN PROTRUSION	<b>.</b>	•055#	+		<del> </del>						
ROUNDS FIRED	ļ	60	<b></b>		ļ			20_			
RDS. IN BURST OR CLIPS	<b> </b>	20	<del>-</del>		↓			20			
NO. OF BURSTS OR GLIPS		3			<del> </del>			1_			
GUNNER	L	Robinson			<u> </u>		R	obins	on	1	
			GUN	FUI	NCTI	ON					
GROUP (MS)			T								
ZERO (MS)			$\perp$								
			DE	FEC	<i>TS</i>						
PRIMER LEAKS	<u> </u>	39	T					11			
PRIMER PERFORATIONS					1						
LOOSE PRIMERS					ļ						
CASE SPLITS			1								
RUPTURE			1		I						
STRETCHES											
GAS FLASHES	ļ. <u>.</u> .										
BREECH FLAMES		numerous	3		<u></u>		r	umer	าบร		
BREECH SPARKS	ļ	numerous	3		ļ		r	numer	วบร		
AMM. FUNCTION	<u> </u>	*			<u> </u>			<del></del>			
REMARKS Hot Fir * 7 stoppages	ing: : 2 loose	primer (	bermi	ssipl	e) wii	h blo	w back of	me te	& K **	nture	<u> </u>
		r leaks								- <del></del>	
		primer w									
** 2 stoppages		primer v									
							ear and ga	s er	ded he	d	
				<u> </u>							
					-			<del>-</del>			_
SM CAL. 30, B. M1917A1		R.U.S. C.					GM GAL				
M CAL30, B. A. C.		PISTOL				II A !	GM CAL				
GM CAL. 30, B. M/9/9A4		GSM CAL			7/		GM CAL			_	
M CAL. 30, B. M1919A6		GM CAL.			_				'20 MK I	Z.	
RM CAL. 30, B. M1919A6 R.A. CAL. 30, B. M1918A2 R.U.S. CAL. 30 M1		GM GAL. GM GAL.	.50, B.	M2 AC			GA 20 1 GA 20 1	HH H.	ز	E.	

\_\_ CHIEF BALLISTIGIAN\_\_\_

John P. Werst

ARMY-RARITAN ARSENALIRAPDI.METUCHEN.NJ-52-1795

Powder: HFS 5232.90 Charge: 39.0 grs Primer: Rem #39	FUNC	TION	ARSENAL AND CAS SEMI-AUTO	SUALTY	TEST	A MA CA I BUL CA I	PRIMER LOT 12=C=  AMM'N. LOT 12=C=  GALIBER 7.62mm  BULLET Ball  CARTRIOGE Aluminum  MFC. F.A.				
		-	GUN D	ATA							
TYPE OF GUN	HANGFIRE	r- <u>հ</u> կ				T-52					
NO. OF GUN		1491				10					
ROUNDS IN GUN		3410				1305					
NO. OF BARREL		1				2					
ROUNDS IN BARREL	I	3410				1305					
WEADXSPACE P.S.		2.186"	1								
PIN PROTRUSION		•055"									
ROUNDS FIRED		60	1			38					
RDS. IN BURST OR CLIPS		20				38					
NO OF BURSTS OR CLIPS		3				1					
SUNNER		kolin <b>so</b> n			in	obinson					
			GUN FUN	CTION				,			
GROUP (MS)		ļ									
ERO (MS)	LL	L	<u> </u>				<u> </u>				
rimer leaks(gas er	oded heads	)	DEFECT	5		2					
PRIMER LEAKS		5				13	T^"				
PRIMER PERFORATIONS							7				
OOSE PRIMERS											
ASE SPLITS			1 1								
RUPTURE											
STRETCHES											
						,					
BREECH FLAMES						Numerou	s	L			
BREECH SPARKS	]					Numerou	s				
AMM. FUNCTION	<u> </u>					#					
REMARKS Hot Firi	ng:										
* 2 stoppages:	l blown pr l loose pr	imer_with imer_(perm	gas eroded missible) wi	head th blow b	ack of met	al and	a gas erod	ed hea			

GM CAL 30, B. M/9/7A/ GM CAL. 30, B. A. C. GM CAL. 30, B. M/9/9A4 GM GAL. 30, B. M1919A6 R.A. CAL..30, B. M1918 A2 RUS. CAL. JOMI RECORDER Seixas

FOREMAN .....

R.U.S. CAL .30 M/903A3 PISTOL AUTO CAL. .45 MIGIIAI GSM CAL .45 M3 M3A1 GM CAL .. 22 M3 - M4 GM GAL. 30, 8. M2 AC

GM CAL. 50, B. M2 HB

GM CAL. .60 TITES GM CAL. . 60 T59 GA CAL . 60/20 MK 12 6A 20 MM M3 GA 20 MM M24AI

GM GAL. .50 M3 AC

W. O. 83805-10-01 DATE FIRED 18 Mar 58 

RI	NY LOT			VELO	CITY	8 PRE	SSURE	REPORT		CAL	24. B, C 18ÉR 7.	62mm
:н	ARGE	39.3	┥							BILL	LET Ral	7 10
•	~···•		OBJE	CT: Ve	rify 7	rest				100	- <del> </del>	1 M-77
CA	SE Alu	minum		Re	DP 7	7-56						
PR	MER_	Rem #39				***				DS. 8-		
			SPEC								30, M61	
	NO.	11 1	7 //00		L. NO.	- 54-	TRED.		A.L.		CHG.	
	NO. F/A	Univers	a⊥ #20		L. NO.	R57 R6L	TRFD.	1220 85			Pwd "S"	
	NO.				L.HO.	G78	TRFD.	1805	10 V 1	5400 ps	<u> (5100 9)</u>	
ÇŲ.	N.U.	R57			L. HO.	R64	II NP D.	1002	IP. V. 4	678	<u> </u>	
	Ref		Lot		Ref	11.034	Lot			Ref		
	2744		2800		2715		2757			2662	12100	I.
	2735	<b>-</b>	2779		2720	-	2809	4		2649	1,21,00	1
	2739	<del>  ,                                   </del>	27.70		2753	<del> </del>	2746	-	ļ	2661	1,3600_	<del>↓</del>
<u></u>	2764	<i>±</i>	2787		2758	<del>                                     </del>	2797	<del> </del>	<del> </del>	2677_	مميليليل	<b>┼</b> ≉
	2743		2773		2762 2756	<del> </del>	2804	<del> </del>	T-1-7	2660	1,2100	<b>┼</b>
<u>.                                    </u>	27 <u>18</u> 2711	+	2762		2756 2714	<del> </del>	28 OL 27 98	<del> </del>	Total Mean	13309 2662	211,600 1,2900	+-
 3.	2762	+	2770		27.58	<del>                                     </del>	2747	<del> </del>	Exv	28	2300	+
<u>.</u>	2760	<del>                                     </del>	27.53	1 7	2746	1	2752		1 4 A S	1		1
0.	2742		2775		2748		2771			Lot		
<u>.                                    </u>									-*	2658	43900	
12.	271.78	Total	27719		7490		27785		*_	2671	11100	<u> </u>
3.	2748	Mean	27.72	ļ	2749		2779		*	2668	77700	<b>-</b>
14.		Cor	₹0	<del>  -</del>		-	-1		<u> </u>	2687	46600	₩.
5.	- 00	Cord	2772	<del> </del>	Ъ2	<del> </del>	2778	<b></b>	*	2672	111700	┼
6. 17.	29	Exv SB	50	<del> </del>	42	<del> </del> -	63	<b></b>	Total	13356	221200	+
8.	<del> </del>	136	<del></del>	├ <del>-</del>		<del> </del>	<del></del>		Mean	2671	777500	<del> </del>
9.	t	1	<b>†</b>	<del>                                     </del>		<del>                                     </del>	<del>                                     </del>		Cor	<b>≠</b> 38	<b>≠</b> 2500	1
20.	<u> </u>		<del>                                     </del>	<del>                                     </del>			T		Cord	2709	16700	
									Exv	29	5500	
		<del></del>	<del></del>	L		<u> </u>			<u> </u>			↓
	<del></del>		<del>                                     </del>	<del> </del>		<del> </del>	<del></del>		<b></b>			<b>}</b>
	<del> </del>	<del></del>	<del> </del> -	├──┼		<del> </del>	<del>                                     </del>		<b></b>	<u> </u>	<del> </del>	+
	<del>                                     </del>	<del></del>	+	<del>                                     </del>		+	+	<b></b>	<u> </u>			+
RF	MARKS	<del></del>	<u> </u>	<del></del>		<del></del>	<u></u>					
		taltern	a ted	<del></del>			<del></del>		Ran	ge No.	10	
									Cour	ter No.	<u></u>	
_									Muze	zle #88		
									Terr	ninel #	53	
:	Loose	primer	s - poss	ibly attri	butab	le to so	cotch tap	<b>e</b>			<del></del> -	
		<del></del>										
			·									
										<del> </del>		
_				CHRON	OGRAPH	OR Ho	lden		<b>o.</b> 51702	2-02-10		
SES	& PRIME	RS		GUNNE		Matell						
_												

ARMY LO	r	$\dashv$	VE	OCITY						יו פי אני	•
CHARGE_			761	LUCITI	B PRES	SURE	REPORT		CAL	2A B C I <b>bér</b> 7.	62mm
CHARGE_	- <u> </u>	_							-		
	39•3	۔.۔	~ <b>~</b> .	<b>50</b>					BU	LET Bal	1 M59
CASE Al	· · · · · · · · · · · · · · · · · · ·	OBJE	C 1 <u>1</u>		<u>blish Ch</u> DP-7-56	arge					
CASE AL	unii nun			R &	DF-1-20						
PRIMER	Rem #39	<del></del>					<del></del>	DEE E	DS.	ه جر	
PRIMER.	1.0.1. 1/3/	SPEC	:		•			CTG	AP M61	0=55	<del></del>
REG. NO.		10.50		BRL. NO.		TRFD.			0633	CHG.	"5 <sub>-</sub> 6
	/A Univers	al #29		BRL. NO.	R57	TRFD.	1195		. B-ևև6		******************
REG. NO.				BRL. NO.	G7L	TRFD.				s (2700	SPI
REG. NO.		'		BRL. NO.		TRFD.		P. V.	1,21,00	psi	
			39.3	TS					Drilled		
	Ref		Lot		,	Ref	T T		Lot		<del></del>
1.	2729	<del>  ,</del>	2729		<u> </u>	2684	13800		2612	10600	<del> </del>
2.	2732	<del>*</del>	2698	+		2687	45100	<del>/</del> -	2589	38000	<del> </del>
3.	2707	<del>  -</del>	2730	+		2685	1,2800		2599 2611	1,0000 1,5000	1/
4.	2712 2709	<del> </del>	2737 2731			2670 2690	77500	<del>-*</del>	2665	145000	Ť
5. 6.	- 103		2675	<u> </u>	<del>                                     </del>	2090	I MEUU	<i></i>	2003	11111111	1
7.	<del>-  </del>	<u> </u>	2714	† <del>-</del>	1	13416	218700	Total	13109	208300	
8.			2737		İ	2683	43700	Mean	2622	11700	
9.			2732					Cor	<b>/</b> 17	<b>∠</b> 1700	
10.			2750	1				Cor1d	2639	43400	
ш						20	2300	Exv	76	7000	↓
12.	13589	Total	27263	<u> </u>						ļ	↓
13.	2718	Mean	2726	<del></del>		<del> </del>	<del>                                     </del>		<u> </u>	<del> </del>	-
14.		Cor	<u></u> ≠30	<del></del>	<del></del>	-	<del>├</del>	=-	<del>                                     </del>	<del> </del>	<del> </del>
15.	25	Cortd	2756	+		<del> </del>	+		<del> </del>	<del>}</del>	+
16.		Exv SD	75 21	+	<del> </del>		<del>                                     </del>	<del></del>	<del> </del>	<del> </del>	+
18.		30		<del></del>	<b></b>		<del>  </del>		<del> </del>	<b>-</b>	+
19.	1		<b>†</b>	<del></del>	<del></del>	<del> </del>	1		<del> </del>	<u> </u>	<del></del>
20.			$\vdash$	<del>                                     </del>	<del> </del>						
				<del></del>			<u> </u>				1
									ĺ		
									L	<u> </u>	
						<b>.</b>	L		ļ	ļ	<del> </del>
			ļ		ļ		L			<u> </u>	<del>                                     </del>
<u> </u>		<u></u>	<u> </u>		ļ	<u> </u>	ليسيل				<del></del>
REMARK	S: ∦ Lo	ose pri	ners								
Pof I	Rds not al	<b>****</b> * * * *	3					Dan	e No.	<u> </u>	
1/61 I	tos not al	verma ve	1						nter No		
								COII	Treat. Mrs.		
- <del></del>											
				BONOCS	00 11-3		. بي	n 201	909 00	-1	
ASES & PRIN	IERS			<u>ironograph</u> Inner	Matecki		W. (	<del>v / 5</del> /	808-02-		
	2/19/58			REBAN	H A Fe		6MI	EF BALL	STIGIAN		

Powder: WC 846			ARSENA				AMM GALI	ER LOT N. LOT BER7.62	
Charge: 45.8			AND CA				m111 1	FT Ball, RIDGE Alu	M59
Primer: Rem #39	AUTOMA	ATIC 8	SEMI-AUT		WEAPON	15	MFG.		
LOT		13A4	13B3	DATA	13B4	13E	7	13B8	1302
TYPE OF GUN	HANGFIRE	т-65	T-65		T65	T-6		т-65	T-65
NO OF GUN		472701	472701		472701		701	472701	472701
ROUNDS IN GUN		10539	10437		10627	108		<b>1</b> 0774	10686
NO OF BARREL		B-5	B-5		B-5	B-5		B-5	B=5
ROUNDS IN BARREL		5439	5337		5527	577		5674	5586
HEAD SPACE		2.188"	2.183"	ļ	2.188"	_2.)	82"	2.188"	2.188"
PIN PROTRUSION		• 064"	.064"		.064"	.00	4"	.064"	.064"
ROUNDS FIRED	<u> </u>	102	87		88	102	2	88	59
RDS. IN BURST OR CLIPS		102	87	ļ <u>.</u>	88	102		88	59
NO. OF BURSTS OR GLIPS		1	1		1	1		1	1
GUNNER		REYNOLL	S REYNOLDS		REYNOLD	RE	MOLDS	REYNOLDS	REYNOL
			GUN FU	NGTION	, , , , , , , , , , , , , , , , , , ,		<u> </u>	,,	
GROUP (MS)				<del>                                     </del>		₩			<del> </del>
ZERO (MS)	<u> </u>	<u> </u>			L	ــــــــــــــــــــــــــــــــــــــ	1	<del></del>	
Gas Eroded Head		3	BEFEC		1.0	9		8	17
PRIMER LEAKS		41(1) 2	26-8 12-1 10	- s	8-1.5-8	<u> 5-1</u> ,	<u> 10-8</u>	5-1 8-в	4- <b>L</b> 7-
PRIMER PERFORATIONS		<u> </u>		<u> </u>	ļ	<u> </u>		<del> </del>	<del>  _   _     _</del>
LOGOE PRIMERS Blown	(Non-Peri	rissible	) 2 (Non-P	ermissible	<b>}</b>	1		<del></del>	3
CASE SPLITS	<u> </u>	<u> </u>		ļ		<b>├</b> ─		-	<del> </del>
RUPTURE				ļ	<del> </del>	<del> </del> -		<del> </del>	<del> </del>
STRETCHES	<u> </u>	<u> </u>			ļ <u></u>	<del> </del>			<del> </del> -
GAS FLASHES				<b></b>	<del></del>	₩			<del> </del>
BREECH FLAMES			!	<u> </u>		<b>├</b>		<del> </del> -	<del> </del>
BREECH SPARKS	L					<b>├</b>		****	****
AMM FUNCTION		<u> </u>	**	<u> </u>	***	<u> </u>		****	*****
* 2 Stoppages: 8 10	Fired +16 rt recoil	50							
** 13 " '	11								
*** 7 " '									
****14 " '					<del></del>				
*****9 " "	1)								
	· · · · · · · · · · · · · · · · · · ·								

GM CAL. 30, B. MISITAI GM CAL. 30, B. A. C. GM CAL. 30, B. MISISA4 GM CAL. 30, B. MISISA6 R.A. CAL. 30, B. MISISA2	R.U.S. CAL30 M1903A3 PISTOL AUTO GAL45 M1911A1 GSM GAL45 M3-M3A1 GM GAL22 M3-M4 GM GAL50, B.M2 AC	GM GAL. 50 M3 AG GM GAL. 60 TITES GM CAL. 60 T59 GA CAL. 60/20 MK 12 GA 20 MM M3	
R.U.S. CAL. 30 MI		GA 20 MM M24AI 0.51702-02-11 DATE FIRED 2 Jun 5	8
PECOPOEP SETXAS & KING.		. 0. 31   UZ=UZ=11 UA12   I III Z	

\_\_ CHIEF BALLISTICIAN\_

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMT-MARITAN ARSENAL (NMPC), METUCHEN, HJ 50-387

ARI	AY LOT_		7	VE	OCITY I	B PRES	SURE	REPORT		CAL	.IBER_ 7.	62 <u>m</u>
CH/	ARGE		<b>ゴ</b>	<b></b> .	Wa* A	<b>~</b>				BUL	LET Bal	1 M59
_	SE_Al	11 <b>ทร์</b> พรรพ	OB1E	۵ ۱ <u>۰</u>	Verify	R&D	7-56		<del></del>	<del></del>		
U.A.	3EXT	MILLIMI	+		es har	עמט	7-50			<del></del>		
PR	MER								REFR	DS. 7-	57	
	· · · · · · · · · · · · · · · · · · ·		SPEC	1						7.62mm		
EG.	NO.				BRL. NO.		TRFD.		A.L.	0633	CHO.	5.7
		Univer	sal No.	12	BRL. NO.		TRFD.		C-137	. B-136	Perd NE	n _
	NO.				BRL. NO.		TRFD.		V. V.27	48 F/S,	2705 F/	9 MSP
Ç,	NO.			لـــــــــــــــــــــــــــــــــــــ	BRL. NO.		TRED.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	P. V. ).	5900 ps	<u> </u>	
	B-			72	-C1		14-	.A 7		71.	-A2	
_	2690	Ш.500	T	-2695	123500-	1		1 11.700-1		-2660		T
	2680	143300-	<u> </u>	2709	77,000		2657	757:00		2672		
1	2720	113900		2720	1,5100,4		-2613	1,1500-		2677		
	2675	111,6004		2705	1,3900		2682	1,2100		2671	1,31,00	
	2691	113900		<i>4</i> 2726	113000	<b></b>	2678	1,31,00		4 2685	12300	↓
	13156		Total		220100	ļ		51/100		13368		┼
<u> </u>	2691	777.000	Mean	2711	111000	<del> </del>	2669	12800		267h	1,3300 ≠1900	├─
) <u>.                                    </u>	<del></del>	<del>                                     </del>	V&P Cor		≠1900 45900	<del>                                     </del>	2683	.≱1900 ไม่เ700		2688	15200	<del>                                     </del>
0.	45	1300	Wx Var	31	1600		1003	3200		25	2900	<del>                                     </del>
<u>.                                    </u>		I	VAL.			İ						
12.												
3.							WTS					
4.		<b></b>	ļ		13-C-1		11,-4-1	<b>  </b>	14-1-2		<u></u>	↓
8.	<u> </u>	<del> </del>	ļ		16.16-		45.76		15.78	<u></u>	<del> </del>	<b>├</b> ─
6.		<del> </del>			46.254	<del> </del>	15.76		15.82 15.81			┼
<del>ر.</del> 8.		<del></del>			46.22		15.76 15.8h		15.77-			<del>                                     </del>
9.		<u> </u>			46.22	<del> </del>	15.75		115.82			<del>                                     </del>
20.					231.08	Total	228.87		229.03			
W. J.					46.22		15.77		15.81			
						Ex Var	-09		-07			
	ļ	<b></b>			<del> </del>	L	<b></b>	ļ			<b>_</b>	-
		<del> </del>			<del> </del>	<b></b> _	<del> </del>	<b>  </b>				├
		<del> </del>			<del> </del>	<b></b>	+	<del> </del>				<del> </del> -
RF	MARKS:				<u></u>		<u> </u>	أحبيب				
			Pr	imer	Cha	T' OF				<del></del>		
		Iot 13.	C-1 Re		1.6-	2 grs			Ch	rono N	0.1	
		Lot Il.	-A-1 Re	m 39	15.	8 prs re	g size v	rents	Ra	nge N	0. 9	
		Lat Di-	A-2 Re	m 39		8 grs le	rge size	vents				
				<del></del> -			<del></del>	<del></del>				
										<del></del>		
					TONOGRAPH			<b>W</b> . (	83805	-10-01		
SE8	& PRIMER	S OK		GUI	NNER	Īac	chman					

Primer: Rem #39   AUTOMATIC & SEMI-AUTOMATIC   WEAPONS   MFG.   F.A.	Powder: SC 846		KFORD						GAL	'N. L IBER	07_1 .07	62mm	1 14
Primer's Rem #39   AUTOMATIC & SEMI-AUTOMATIC WEAPONS   MFG. F.A.	Charge: 45.8 grs	FUNC			CASUA	LTY	TEST	•	BULL	E T	Pall		
Total   13A-1   GUN DATA   13A-2   13A-3   11A-1   11A-2	D												lum
TYPE OF GUN	Primer: Rem #39	AUTOM	ATIC & S	SEMI-A	AUTOMAT	1C W	EAPOI	V <i>S</i>	MFG	· —	F.A.		
NO. OF GUN	LOT		134-1	GL	N DATA		13 <sup>A</sup> -2	13/	1-3	144	-1.	11 <sub>1</sub> A-	-2
### ROUNDS IN GUN   5127   55561 5668 5165 5332   ####################################	TYPE OF GUN	HANGFIRE					T-կկ	T-	ելկ	T	<u>-444</u>		
MO. OF BARREL   1	NO. OF GUN		1491	Ĺ			11,91						
ROUNDS IN BARREL 5427 5564 5668 5165 5332  MEMBY SPACE B.S. 2.186* 2.186* 2.186* 2.186* 2.186*  PIN PROTRUSION .052* .05	ROUNDS IN GUN		5427				5564	566	<u> </u>	5	465_	<del>↓ 533</del>	12
##### \$PAGE B.S.	NO. OF BARREL									+			
#### \$PAGE B.S.   2.186"   2.1				L			5564	56	<u> 58</u>	-			
### PROTRUSION   .052*			2,186m							_			
### ROUNDS FIRED   95   99   10h   38   55   #### ROS. IN BURST OR CLIPS   20 - 15   20 - 19   20 - 1   20 - 18   20 - 1   ### RODINSON   RODIN			•052 <b>#</b>				.052	1 4	252*	•	052"		
### ROS. IN BURST OR CLIPS   20 - 15   20 - 19 20 - 1 20 - 18 20 - 1	ROUNDS FIRED						99	10	1	L	38		
GUNNER Robinson Robin			20 - 15	I			20 - 19	20	- 4	20	_ 18	20	- 15
GUN FUNCTION  GROUP (MS)  ZERO (MS)  Primer Leaks (Eroded head) 6 - I.  PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS GASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION	NO. OF BURSTS OR CLIPS		4-1				4-1	5.	- 1	1	<u>1_</u>	12	-1
GROUP (MS)  ZERO (MS)  Primer Leaks (Eroded head) 6 - I.  PRIMER LEAKS 29-I., 20-S 39-I.,21-S 10-I.,13-S 3-S 6-I.,14-S  PRIMER PERFORATIONS LOOSE PRIMERS  GASE SPLITS  RUPTURE  STRETCHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM. FUNCTION	GUNNER		Robinson		l	R	obin <b>s</b> on	Rob	nson	Rob	inson	Robi	nson
Primer Leaks (Eroded head) 6 - I.  PRIMER LEAKS 29-L, 20-3 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-S 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-S 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$  PRIMER PERFORATION 20-S 39-L, 21-\$  PRIMER PERFORATION 20-S 39-L, 21-\$  PRIMER PERFORATION 20-S 39-L, 21-\$  PRIMER PERFORATION 20-				GUN	FUNCTIO	N							
Primer Leaks (Eroded head) 6 - I.  PRIMER LEAKS 29-L, 20-3 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-\$ 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-S 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$ 10-L, 13-\$ 3-S 6-L, 1-\$  PRIMER PERFORATIONS 20-S 39-L, 21-\$  PRIMER PERFORATION 20-S 39-L, 21-\$  PRIMER PERFORATION 20-S 39-L, 21-\$  PRIMER PERFORATION 20-S 39-L, 21-\$  PRIMER PERFORATION 20-	GROUP (MS)											L	<u> </u>
Primer Leaks (Eroded head) 6 - L  PRIMER LEAKS  PRIMER PERFORATIONS  LOOSE PRIMERS  CASE SPLITS  RUPTURE  STRETCHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM. FUNCTION								I	1	<u> </u>		<u> </u>	<u>l</u>
PRIMER LEAKS 29-L, 20-S 39-L, 21-S 10-L, 13-S 3-S 6-L, 14-S PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION		oded head	) 6 - T	DEF	ECTS		1,		1				
PRIMER PERFORATIONS  LOOSE PRIMERS  CASE SPLITS  RUPTURE  STRETCHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM, FUNCTION						3	9-T., 21-	\$ 10	-I., 13	S	3-5	6-1	Ji-S
LOOSE PRIMERS  CASE SPLITS  RUPTURE  STRETGHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM, FUNCTION				f				T					
GASE SPLITS RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM, FUNCTION								1				Τ	
RUPTURE  STRETCHES  GAS FLASHES  BREECH FLAMES  BREECH SPARKS  AMM, FUNCTION								1					
STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM, FUNCTION												Ι	
GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION						7				T		1	
BREECH FLAMES BREECH SPARKS AMM, FUNCTION				<u> </u>				Ī					
BREECH SPARKS AMM. FUNCTION								1				Ι	
AMM, FUNCTION				1								I	
			<del> </del> -										
		Firing /	1650	<del></del>								<u> </u>	
	REMARKS:Hot	Firing #	1650										
													_
GM CAL 30, B. M1917A1 R.U.S. CAL30 M1803A3 GM CAL50 M3 AC GM CAL30, B. A. C. PISTOL AUTO GAL45 M1911A1 GM CAL60 T17E5													

GM CAL. 30, 8. M1919A6

R.A. CAL. . 30, B. M1918 A2

R.U.S. GAL 30 MI RECORDER Seixas

CHIEF BALLISTICIAN\_

GM GAL..22 M3-M4 GM GAL..50, B. M2 AC

GM GAL .. 50, B. M2 HB

GA CAL. .60/20 MK 12

GA 20 MM M24AI M.O. 51702-02-11 DATE FIRED May

ARMY-RARITAN ARSENALIRAPDI.METUCHEN.NJ-52-1795

GA 20 MM M3

Powder: WC 846 Charge: 45.8 grs Primer: Rem #39

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST AUTOMATIC & SEM!-AUTOMATIC WEAPONS

PRIMER LOT\_13 BULLET Ball CARTRIDGE aluminum
MFG. F.A.

ARMY-RARITAN ARSENALIRAPDI.METUCHEN.MJ-52-1785

LOT		13B-1	GUN	DATA 138-2	13	B-5	13B-6
TYPE OF GUN	HANGFIRE	T-1:14		T-lili		<u>-111</u>	<b>†</b> -1:1:
				144		491	1491
NO. OF GUN		1) <sub>1</sub> 91 5829		5895		075	5971
ROUNDS IN GUN	-					1	39 /I
NO. OF BARREL	<del> </del>	1 58 <b>2</b> 9		5895		075	5971
COUNDS IN BARREL	<del> </del>	2.186"				186"	2.186**
MEAR SPACE B.S.	<del></del>	•052"		2.186"		•052"	•0524
PIN PROTRUSION	ļ	105		76		.07 .	66
ROUNDS FIRED	<del> </del>	20 - 5		20 - 16		0 - 4	20 - 6
RDS. IN BURST OR CLIPS		5 - 1		3 . 1		5 <b>-</b> 1	20 - 0
IO. OF BURSTS OR CLIPS		Robinson		Robinson		binson	Robinson
UNNER	l	<u> </u>	<del></del>		, ro	orus oul	TOUTUBOU
		G	UN FU	NCTION			
ROUP (MS)							
ERO (MS)							
Cas Eroded Head (B	lown Prime	r)	DEFEC	TC		1	
Primer Leaks (erode	d heads)	29	DEFEC	16		49	12
PRIMER LEAKS		10-L, 10-S		10-L.12-S	1.7~	L.12-S	14-L.15-
PRIMER PERFORATIONS							
OOSE PRIMERS							
ASE SPLITS							
OPTURE	1						
TRETCHES							
AS FLASHES		I					
REECH FLAMES							
REECH SPARKS							
MM. FUNCTION							
EMARKS Hot Fir	ing /1650	<del></del>		<u> </u>			
	<del></del>				-		
					<del></del>		
				<u> </u>	GM CAL.	.50 M3 AG	
M CAL 30, B. M1917A1		R.U.S. GAL					
M GAL .30, B. MI9I7AI M GAL .30, B. A. C.				45 M1911A1		.60 TITE5	
-			ITO CAL	45 M1911A1	GM CAL. GM CAL.	.60 TITE5	
M CAL. 30, B. A. C. M CAL. 30, B. M1919A4	!	PISTOL AL	ITO CAL 45 m3-m3.	45 M1911A1	GM CAL.	.60 TITE5	,
M GAL. 30, B. A. G.	,	PISTOL AL GSM CAL	ITO GAL 45 m3-m3. 2 m3-m4	45 M1911 A1 A1	GM GAL. GA GAL. GA 20 MA	.60 TITE5 .60 T59 .60/20 MK 12 N M3	,
M CAL. 30, B. A. C. M CAL. 30, B. M1919A4 M CAL. 30, B. M1919A6		PISTOL AL GSM CAL GM CAL2.	)TO CAL 45 M3-M3, 2 M3-M4 0, B. M2 A0	<b>45 M</b> 1911 A1 A1 G	GM GAL. GA GAL GA 20 MA GA 20 MA	.60 TITES .60 T59 .60/20 MK I2 M M3 M M24AI	9 May 58

Powder: WC'846	1	KFORD							AMM	ER LOT_ 'N. LOT_ BER_7.6		
Charge: 45.8	FUN.	ON	AND	GA	4 <i>SUA</i>	LTY	' TES	7		er Bal		
Primer: Rem #72	]	R & D	7-56							RIDGE A		am.
Lot 13C-1	AUTOM.	TIC B	SEMI	-AUT	TOMAT	7/ <i>C</i>	WEAP	ONS		F.		
Primer: Rem #39	<u> </u>											
Iot 13C-3		130-1		GUN	DATA	!	13C-3					
TYPE OF GUN	HANGFIRE	T-կկ					T-lılı					
NO. OF GUN		1491	<u> </u>				1491		I			
ROUNDS IN GUN		5277	I				5724					
NO OF BARREL		1	L_				1					
ROUNDS IN BARREL		5277			L		5724		I			
HETATE SPACEB.S.		2.186°			ļ		2,186	,11				
PIN PROTRUSION		•052"			<u> </u>		.052	11	l			
ROUNDS FIRED	l	72					56		I			
RDS. IN BURST OR CLIPS		20 -12	1		1		20 - 1	6	]			
NO. OF BURSTS OR CLIPS		3 - 1	1				2 - 1				<b>_</b>	
GUNNER		Robinson			上.—		Robins	on	i			
			GUN	FUI	NCTIO	ON						
GROUP (MS)												
ZERO (MS)												L
	_		ΩF	FEC	TS							
Primer leaks (erode	d heads)			, 20	, ,		28					
PRIMER LEAKS		5-L, 2-S	Ι			$= \exists$	13-L. 3	-S	I			
PRIMER PERFORATIONS											┛	
OSE PRIMERS			<u>l</u>						T		J	
TASE SPLITS					L				I		L.	
RUPTURE			l		L			.]	I			
TRETCHES					<u> </u>	l						
AS FLASHES												
REECH FLAMES			J								<u> </u>	
REECH SPARKS			<u> </u>		<u> </u>			_]			<u> </u>	
MM. FUNCTION			<u> </u>		l							
REMARKS:Hot. F	iring: #10	55°						_				
<del></del>												
M CAL .30, 8. M1917A1		R.U.S. GA	L.30	M1903	143		GM	GAL.	50 M3	AG		
M CAL. 30, B. A. C.		PISTOL .	AUTO	GAL	45 M191	/ A /	GM	GAL	50 TITE	5		
M CAL. 30, B. M/9/9A4		GSM GAL	45 M	13 - M3 A	4/		GM	CAL	60 759			
M CAL. 30, 8. M1919A6		GM GAL	22 M3	- 44			GA	CAL	60/20	WK 12		
.A. CAL 30, B. MISIB A2		GM CAL			;		GA	20 MM	M3			
.U.S. GAL, 30 MI		GM GAL.	50, 8.	W2 HB	1				M24AI			
RECORDER Sei	Xas					. w.	0 5170	2-02-1	1 DAT	E FIRED S	May	58

FOREMAN-

\_\_ CHIEF BALLISTICIAN\_\_

ARMY-HARITAN ARSENALIRAPDI.METUCHEN.NJ-52-1795

POV	VDER_He 5232		FRANKE	UNU ANGE	TAL PAG	OF IE	.31 ING	SECTION	AMM. LOT. 15
ARN	Y LOT_		<b>-</b>	ELOCITY 8	RESS	URE	REPORT		CALIBER 7.62mm
HA	RGE_L	0.0	OR IECT:	Varier (1					BULLET Rell MS
	SE Alum	inum	OBJECT <u>:</u>	Verify Ch	na rge				<del> </del>
, A :	DE VIUN	TIIWII	<del> </del>	посп	( <del>-</del> 20				<del> </del>
PI	MER Re	m #72	<del> </del>	<del></del>				REF. RD	3, 2-58
	teel ad		SPEC	, <u> </u>		,,			all M59
G. i	NO.			BRL. NO.		TRED.		A.L. 406	
C.	HO. F.A	. Univer	sal #8	BRL. NO. T	₹ <b>-6</b> 9	TRFD.	1502		B-458, Pwd "Z"
G.	N O.			BRL. NO.		TRFD.		V. V. 275	8 F/S 2727 S/P
Ç.	NO. II	11	18	BRL. NO.	G-85	TRED.	1383	P. V. 44	•500 psi
		R <b>-</b> 69				G-85			
$\dashv$	Ref	<del>,</del>	ogl.l. I	Ref	10000		1.0600	1.6000	Wts 40.05
$\dashv$	2759 2765	<del>  </del>	27hh- 27h6	-269 : 2711	43700	<del></del>	-2638 ≠2670	46000 46100	40.86
$\dashv$	2743 -	<del>                                     </del>	2750	12727	1,7100 1,7600		2660	151.00	70.05
┪	2761	1	27874	2700	1,51,00		2657	1,71004	10.03
	2785 4		2748	2725	46900		2650	10.300=	1,0,074
	13813	Total	13775	13558	230700		13275	228900	20023
	2763	Mean	2755	2712	46100		2655	15800	40.05
_		Vel Cor	<u>-5</u>		<b></b> _		/15_	-1600	
Ч	10	Cor Vel	2750		-		2670	1/1/200	
	75	Ex Var	<u>h3</u>	32	3900		32	2800	C5
Н		SD	16				<u> </u>	900	
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		$\vdash$			<b></b>				
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	<del></del>						Chro	10 #Jī	
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				CHRONOGRAPH	OR Helfer			<b>o</b> . 51702-0	02-11
ES	& PRIMER	s OK		GUNNER MC	adden				
TE	FIRED	8/11/58		FOREMAN H.A	Fo lo		en-	IEF BALLISTI	CIAN

FOV	NDERH	32.99	⊢ FRA						PECTION	AMM. LOT.	15.4 A.B.
ARN	Y LOT_		7	VE	OCITY	B PRE	SSURE !	REPORT		CALIBER_	7.62mm
CHA	RGE	40.0 GR	S OBJE	AT.		Pressi	re Test			BULLET_	Ball M59
CAS	SE Nat	0	-			+1000u	70 1030			<del> </del>	
<b>U</b> A.		inum			R	& D-7-	56			<u> </u>	
PR	MER. R	em #72		·					REF. RDS	2-5	8
ste	el aden	ter_tvoe	SPEC			_			CTG. B	all M59 Nat	Ú
REG.					BRL. NO.		TRED.		A.L. 40	533 CH	3, 46.7 GRS
		A. Unive	rsal 22		BRL. NO.	G-109	TRFD.	305	C-459 B	-458 PWD #I	. п
REG.					BRL. NO.		TRFD.	<del></del>		727 F/S 44.500 PSI	
REG.	N 0.				BRL. NO.	ormal	TRED.		1P. V. '	14,500 FSI	
	R	ef. Rds.		A	<u>F</u>	OI III		B			
1.	2711	45100		2710	44700		2685	421004			
2.	2717	45200		2693	42900		-2673				
3.	12734	44500		2667	42800	·		40800-			
4.	2718 -2701	464004			447004	<del> </del>	2682	41700 41800	<del>-</del>		
5.	13581	43600- 224800	Total	-2000	41500 <u>-</u> 216600	<del> </del>	13/1/	207800			
•	2716	45000	Mean		43300	<del> </del>	2683	41600		<del>-  </del>	<del></del>
 8.		4,000	Cor.	<del>برائر</del>	-500	<del>                                     </del>	711	500	<del></del>	<del></del>	<del></del>
9.		-	Cor.M.	2701			2694				
10.	3 <b>3</b>	2300	Ex.V.	48	3200	<u> </u>	23	1300			
11.											
12.					ļ	Hot					
13.				A			B				
14.				2708	43800		2740	45100/	<del></del>		
15. 16.				72722	44,200 46300,4		72755		<del></del>		
17.					46100	<del></del>	-2695			<del></del>	
18.		· · · · · · · · · · · · · · · · · · ·		-2694				44500			
19.			Total		223600	ļ	13631	217500			
20.			Mean		44700		2726				
			Cor.	<b>√</b> 11	-500		711	-500			
			Cor.M.	2729			2737				
			Ex.V.	39	31,00		60	4300			<del></del>
					╁	<del> </del>		<del> </del>		<del></del>	
-	├ <del>-</del>			<del></del>	+	<del> </del>	+	· · · · · · · · · · · · · · · · · ·		<del></del>	<del></del>
RF	MARKS:		لــــــــــــــــــــــــــــــــــــــ		<del></del>	<u> </u>		<u> </u>			
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	<del></del>				••						
				CHI	RONOGRAPH	or S	anderson	W. 0	5170	2-02-11	
ASES	& FRIMER	s ok			NNER	M	cFadden				
PATE	FIRED	8-27-	58	FO	REMAN 2/	474	<u> </u>	CHI	EF BALLISTIC		
DATE	FIRED	-	58	GUI		or s	anderson cFadden		EF BALLISTIC		TUCHEN.

Powder: HES 5232.99 Charge: 40.0 Primer: Rem #72 with steel adapte	FUNC		4 <i>ND</i>	<i>CA</i> -56	SUA	LTY	TES	7	AMM GALI BULL GART	BER ETB RIDGE_	7 <u>15A</u> 7.62m	
	· · · · · · · · · · · · · · · · · · ·	≠70 <b>°</b> F	(	GUN	DATA	4		<b>√</b> 16	5 <b>°</b> F			
TYPE OF GUN	HANGFIRE	т65							-65			
NO. OF GUN		<b>៤72701</b>						1.72	701			
ROUNDS IN GUN		23909						23	869			
NO OF RARREL		B-18	<b></b>		Ļ			B	18		ļ	
ROUNDS IN BARREL		2033	ļ				<del></del> -	19				
HEADE SPACE B.S.		2.1811"	<u> </u>		<del>  </del>				184"		_	
PIN PROTRUSION		06\u^n	<del> </del>		<del> </del>		<del></del>		06L"			
ROUNDS FIRED		40	<b></b>					47				
RDS. IN BURST OR CLIPS		170	<del> </del>		<del>                                     </del>			47				
NO. OF BURSTS OR CLIPS		1	ļ			+		<del> }</del>	<del></del> -	· - · · · ·		
GUNNER		Williams			L			Kil	liems.			
			GUN	FUN	VCTI	ON						
GROUP (MS)					$\Box$	I						
ZERO (MS)		<u> </u>	<u> </u>		<u>iL</u>			_L	$\perp \perp$			
			DE	FECT	T <b>S</b>							
PRIMER LEAKS			ļ		ļ			<del></del>	<u></u> -I			
PRIMER PERFORATIONS		ļ	<del>}</del>		}			}				
LOOSE PRIMERS		<del> </del>	<u></u>		ļ				i		-+	
CASE SPLITS RUPTURE												
STRETCHES	. <del></del>				ļ							
GAS FLASHES		<b></b>			<b></b>							
BREECH FLAMES		<b></b>			<b> </b>							
BREECH STARKS		ļ			ļ							
AMM. FUNCTION		L_ok_	<u> L.                                    </u>		<u></u>			لصلب	ok l			
REMARKS Norma												
GM CAL .30, B. MISITAI		R.U.S. CA						CAL. 5				
SM GAL30, B. A. G.		PISTOL				II A I		GAL. 6		5		
SM CAL. 30, B. M/9/9A4		GSM CAL			11			CAL 6				
SM CAL. 30, B. M1919A6		GM GAL.						GAL6 20 MM		MK IZ		
R.A. GAL <b>30,B. M1918</b> A2 R.U.S. GAL <b>30 M1</b>		GM GAL GM GAL	•					20 MM				
RECORDER Seixe		UM UML.	JU, D.	WE 75			o. 5170	ว_กวี_า	η̈́ - 74'.		20 4	5

RECORDER.

FOREMAN-

HAF

\_ CHIEF BALLISTICIAN\_

Powder: HES 5232.99	FRANKFORD		_		PRIMER LOTAMM'N. LOT15B
Charge: 40.0	FUNCTION	& D 7-56	SUALIT	(63)	BULLET Ball
Primer: Rem #72	AUTOMATIC &	SEMI~AUT	OMATIC	WEAPONS	GARTRIDGE Aluminum MFG. F.A.
with steel adap		52, 7.57			
	≠70°F	GUN L	DATA	∕165°F	
TYPE OF GUN	HANGFIRE T-65			т-65	
NO. OF GUN	472701			472701	
ROUNDS IN GUN	23955			23822	
NO OF BARREL	B-18		······································	B-18	
ROUNDS IN BARREL	2079	_		1946	
WEAR SPACE B.S.	2.184"			2.184"	
PIN PROTRUSION	•064"			•06L#	
ROUNDS FIRED	46			46	
ROS. IN BURST OR CLIPS	46			46	
NO. OF BURSTS OR GLIPS	1			1	
GUNNER	Villia	ms		Williams	
		GUN FUN	CTION		
GROUP (MS)					
ZERO (MS)					
		DEFECT	5		
PRIMER LEAKS					T T
PRIMER PERFORATIONS					
LOOSE PRIMERS					
CASE SPLITS					
RUPTURE	<del></del>				
		<b></b>			
GAS FLASHES		·		<del></del>	
BREECH FLAMES					
BREECH SPARKS					
AMM. FUNCTION	OK		·	OK	
REMARKS Enlarge					· · · · · · · · · · · · · · · · · · ·
	2 701 9 11020 820/		-		
GM CAL .30, B. M1917A1		CAL. 30 M1903A			30 M3 AC
M CAL. 30, B. A. C.		AUTO GAL. 4		GM CAL	
GM CAL. 30, B. M/9/9A4		4L . 45 M3-M3A1	<i>'</i>	GM GAL	
SM CAL. 30, B. M1919A6		22 M3 M4			80/20 MK 12
R.A. GAL. 30, B. M1918 A2		50, B. M2 AG		GA 20 MM	
P.U.S. CAL. 30 MI	GM CAL	50, B. M2 HB		GA 20 MM	
RECORDER Seixas			w.	0.51702-02-10	DATE FIRED 29 Aug 5
FOREMAN HAT		CHI	EF BALLIS	TIGIAN	

ARMY-RARITAN ARSEN ,L(RAPDI-METUCHEN.NJ-52-1795

Powder: HFS 5232.99
Charge: 40.0

GROUP (MS) ZERO (MS) FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
R & D 7-56

PRIMER LOT Rejects

AMM'N. LOT 16-T

CALIBER 7.62mm

BULLET Ball

CARTRIDGE Aluminum

MEG F.A.

Primer: Rem #72
with steel adapter AUTOMATIC & SEMI-AUTOMATIC WEAPONS

Thick Tri GUN DATA 165°F Pringr Head Primer Head HANGFIRE TYPE OF GUN T-65 T-65 T-65 T-65 T-65 72701 472701 472701 472701 և72701 NO. OF GUN 27297 27349 27332 27375 27317 ROUNDS IN GUN 28 28 28 28 <u> 28</u> NO. OF BARREL 3888 3836 3871 387L <u> 3856</u> ROUNDS IN BARREL 2.183" 2.183" 2.183" 2.1837 2.183m .067" •067" .067" <u>.067"</u> •067" PIN PROTRUSION ROUNDS FIRED 19 <u> 15</u> RDS. IN BURST OR GLIPS NO. OF BURSTS OR CLIPS <u>ambino</u> Cambino Bambino <u>Gambino</u> Gambino GUNNER

GUN FUNCTION

	DEFECTS			
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OK	OK		_lOKI	OX
	OK	OK OK	OK OK OK	

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GM CAL 30, B M1917A1 R.
GM CAL 30, B A. C. P1
GM CAL 30, B M1919A4 G5
CM CAL 30, B M1919A6 GA
R.A. CAL 30, B M1918A2 GM
R.U.S. CAL 30 M1
RECORDER Seixas

FOREMAN ....

R.U.S. CAL..30 M1903A3
PISTOL AUTO CAL..45 M1911A1
GSM CAL..45 M3-M3A1
GM CAL..22 M3-M4
GM CAL..50, B.M2 AC
GM CAL..50, B.M2 HB

6M CAL. 50 M3 AC
6M CAL. 60 T17E3
6M CAL. 60 T59
6A CAL. 60/20 MK 12
6A 20 MM M3
6A 20 MM M24A1
W.O. 83805-10-01 DATE FIRED 20 Oct 58

ARMY-RARITAN ABSENAL (BAPE) METHICHEN.HJ 52 1795

\_\_ CHIEF BALLISTICIAN.\_\_

Powder: HES 5232.99

## Charge: 40.0

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R&D 7-56

PRIMER LOT rejects
AMM'N LOT 16-T
GALIBER 7.62mm GALIBER\_ BULLET Ball CARTRIDGE Aluminum

Primer: Rem #72

| 165°F Hes  I'YPE OF GUN HANGFIRE  NO. OF GUN  ROUNDS IN GUN  NO. OF BARREL  ROUNDS IN BARREL  HEAR SPACE B.S.  PIN FROTRUSION  ROUNDS FIRED  ROS. IN BURST OR GLIPS  NO. OF BURSTS OR GLIPS  1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 345<br>183"<br>067"                         | GUN FU                                                                              |                        |                                                                            | Short Length  T-65 4,72701 27355 28 3894 2.183** .067** 6 1 Cambino             | Long Hesto shoulded                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| NO. OF GUN  ROUNDS IN GUN  NO. OF BARREL  ROUNDS IN BARREL  REGUNDS IN BARREL  REGUNDS FOR B.S.  PIN PROTRUSION  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FOR GLIPS  IN BURST OR GLIPS  GUNNER  CE  REQUP (MS)  PRIMER LEAKS PRIMER PERFORATIONS  GOSE PRIMERS  GOSE PRIMERS  GASE SPLITS  RUPTURE Complete  STRETCHES  REFECT FLAMES  REFECT FLAMES  REFECT FLAMES  REFECT FUNCTION  REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 72701<br>27306<br>3<br>345<br>183"<br>0067" |                                                                                     |                        | 472701<br>27305<br>28<br>38h4<br>2.183"<br>.067"<br>8<br>8<br>1<br>Cambino | 472701<br>27355<br>28<br>3894<br>2.183"<br>.067"<br>6                           | 1472;01<br>27278<br>28<br>3818<br>2.183<br>.06L<br>7<br>7<br>1<br>Cambir |
| NO. OF GUN ROUNDS IN GUN ROUNDS IN GUN NO. OF BARREL ROUNDS IN BARREL 36 MEAN SPACE B.S. PIN PROTRUSION ROUNDS FIREO 16 ROUNDS FIREO 17 ROS. IN BURST OR GLIPS 17 ROUNER 18 ROUP (MS) PRIMER LEAKS PRIMER LEAKS PRIMER PERFORATIONS ROUSE PRIMERS ROSE SPLITS RUPTURE Complete BARECH FLAMES REFECH FLAMES REFECH FLAMES REFECH SPARKS REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 72701<br>27306<br>3<br>345<br>183"<br>0067" |                                                                                     |                        | 472701<br>27305<br>28<br>38h4<br>2.183"<br>.067"<br>8<br>8<br>1<br>Cambino | 472701<br>27355<br>28<br>3894<br>2.183"<br>.067"<br>6                           | 1472;01<br>27278<br>28<br>3818<br>2.183<br>.06L<br>7<br>7<br>1<br>Cambir |
| ROUNDS IN GUN  MO. OF BARREL  ROUNDS IN BARREL  ROUNDS IN BARREL  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FIRED  ROUNDS FOR CLIPS  ROUNDS OR CLIPS  ROUNDER  ROUNDER  ROUNDER  ROUP (MS)  PRIMER LEAKS  PRIMER PERFORATIONS  ROUSE PRIMERS  ROUP Complete  RO | 27306<br>345<br>183"<br>067"                |                                                                                     |                        | 27305<br>28<br>38k4<br>2.183"<br>.067"<br>8<br>8<br>1<br>Cambino           | 27355<br>28<br>3894<br>2.183"<br>.067"<br>6                                     | 27278 28 3818 2.183 .061 7 7 1 Cambin                                    |
| ROUNDS IN BARREL  ROUNDS IN BARREL  REAR SPACE B.S.  PIN PROTRUSION  ROUNDS FIRED  1  ROS. IN BURST OR CLIPS  1  ROUNDER  ROUNDER  ROUNDER  ROUNDER  REQUP (MS)  PRIMER LEAKS PRIMER PERFORATIONS  ROUSE PRIMERS  ROUP COMPLETE  ROUP COMPLETE  ROUP COMPLETE  RECORD COMPLETE  RECORD COMPLETE  REFECT FLAMES  REFECT FLAMES  REFECT SPARKS  MMM. FUNCTION  REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 345<br>183"<br>067"                         |                                                                                     |                        | 28<br>38k4<br>2.183"<br>.067"<br>8<br>8<br>1<br>Cambino                    | 28<br>3894<br>2.183"<br>.067"<br>6<br>6                                         | 28<br>3818<br>2.183<br>.06L<br>7<br>7<br>1<br>Cambir                     |
| ROUNDS IN BARREL 38 MEAR SPACE B.S. 22. PIN PROTRUSION 2. ROUNDS FIREO 1 ROS. IN BURST OR GLIPS 1 ROUNDER CONTROL OR GLIPS 1 RUNNER CE REQUP (MS) PRIMER LEAKS PRIMER PERFORATIONS ROSE PRIMERS RASE SPLITS RUTTURE Complete RECH FLAMES REEGH FLAMES REEGH FLAMES REEGH SPARKS REEGH FUNCTION REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 345<br>183"<br>.067"                        |                                                                                     |                        | 3814<br>2.183"<br>.067"<br>8<br>8<br>1<br>Cambino                          | 3894<br>2.183"<br>.067"<br>6<br>6                                               | 3818<br>2.183<br>.06L<br>7<br>7<br>1<br>Cambir                           |
| PERSON SPACE B.S. 2.  PIN PROTRUSION  PROUNDS FIREO  ROUNDS FIREO  ROUNDS FOR CLIPS  IND. OF BURSTS OR CLIPS  ROUNDER  PRIMER LEAKS  PRIMER LEAKS  PRIMER PERFORATIONS  COSE PRIMERS  PRIMER SPACE  PRIMER SPACE  PRIMER SPACE  PRIMER PERFORATIONS  PRIMER PERFORATIONS  PRIMER PERFORATIONS  PRIMER PERFORATIONS  PRIMER SPACE  PRIMER SPACE  PRIMER SPACE  PRIMER SPACE  PREECH FLAMES  PREECH FLAMES  PREECH SPARKS  PREECH SPARKS  PREMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | .183"<br>.067"                              |                                                                                     |                        | 2.183" .067" 8 8 1 Cambino                                                 | 2.183"<br>.067"<br>6<br>6                                                       | 2.183<br>.06L<br>7<br>7<br>1<br>Cambir                                   |
| PIN PROTRUSION ROUNDS FIREO 1 ROSS IN BURST OR GLIPS 1 ROUNER ROUP (MS) PEROUP (MS) PERO (MS) PRIMER LEAKS PRIMER PERFORATIONS ROSE PRIMERS RASE SPLITS RUPTURE Complete STRETCHES REFECH FLAMES REFECH FLAMES REFECH FLAMES REFECH FLAMES REFECH SPARKS REFEMBRISH REFECH SPARKS REFEMBRISH REFERD SPARKS REFEMBRISH REFERD SPARKS REFEMBRISH REFEMBRISH REFERD SPARKS REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REFEMBRISH REF | mbino                                       |                                                                                     |                        | 8<br>8<br>1<br>Cambino                                                     | 6 6 1                                                                           | 7 7 1 1 Cambir                                                           |
| ROUNDS FIRED 1 RDS. IN BURST OR CLIPS 1 RD. OF BURSTS OR CLIPS 1 RDUNNER CE RROUP (MS) PRIMER LEAKS PRIMER PERFORATIONS ROSE PRIMERS RASE SPLITS RUPTURE Complete RTRETGHES RAS FLASHES REECH FLAMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                             |                                                                                     |                        | 8 1 Cambino                                                                | 6 6 1                                                                           | 1-63                                                                     |
| ROS. IN BURST OR CLIPS  IO. OF BURSTS OR CLIPS  INCOMP (MS)  PRIMER LEAKS  PRIMER PERFORATIONS  OOSE PRIMERS  ASE SPLITS  PUTURE Complete  TRETGHES  AS FLASHES  PREECH FLAMES  REECH SPARKS  MM. FUNGTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                             |                                                                                     |                        | Cambino                                                                    | 1                                                                               | 1-63                                                                     |
| TO. OF BURSTS OR CLIPS  COUNTER  CROUP (MS)  CRIMER LEAKS  CRIMER PERFORATIONS  COSE PRIMERS  CASE SPLITS  CUPTURE Complete  CTRETGHES  AS FLASHES  CREECH FLAMES  CREECH SPARKS  CHMM. FUNGTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                             |                                                                                     |                        | Cambino                                                                    | <del></del>                                                                     | 1-63                                                                     |
| PRIMER LEAKS PRIMER PERFORATIONS OOSE PRIMERS PASE SPLITS PRIMER Complete PRIMER SHASHES PREECH FLAMES PREECH SPARKS MM. FUNCTION PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                             |                                                                                     |                        |                                                                            | Cambino                                                                         | 1-63                                                                     |
| PRIMER LEAKS PRIMER PERFORATIONS OOSE PRIMERS PASE SPLITS PRIMER Complete PASE SPLITS PREFCHES PASE FLASHES PREFCH FLAMES PREECH SPARKS MM FUNCTION PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |                                                                                     |                        |                                                                            |                                                                                 | <del></del>                                                              |
| PRIMER LEAKS PRIMER PERFORATIONS OOSE PRIMERS ASE SPLITS PUPTURE Complete PTRETCHES AS FLASHES REECH FLAMES REECH SPARKS MM. FUNCTION PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | OK                                          | DEFEC                                                                               | 75                     |                                                                            |                                                                                 | <del></del>                                                              |
| PRIMER LEAKS PRIMER PERFORATIONS PRIMER PERFORATIONS PRIMER S PRIMERS  | OK                                          | DEFEC                                                                               | 75                     |                                                                            |                                                                                 | <del></del>                                                              |
| PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS PASE SPLITS RUPTURE Complete STRETCHES PASES PREECH FLAMES PREECH SPARKS PAMM FUNCTION REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OK                                          | DEFEC                                                                               | 75                     |                                                                            |                                                                                 | <del></del>                                                              |
| PRIMER PERFORATIONS  OOSE PRIMERS  ASE SPLITS  FUPTURE Complete  TRETGHES  AS FLASHES  FREECH FLAMES  REECH SPARKS  MM. FUNGTION  PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | OK                                          |                                                                                     |                        |                                                                            |                                                                                 | <del></del>                                                              |
| RIMER PERFORATIONS  OOSE PRIMERS  ASE SPLITS  PUPTURE Complete  TRETCHES  AS FLASHES  REECH FLAMES  REECH SPARKS  MM. FUNGTION  PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OK                                          |                                                                                     |                        |                                                                            |                                                                                 | <del></del>                                                              |
| OOSE PRIMERS ASE SPLITS FUPTURE Complete TRETGHES AS FLASHES FREECH FLAMES FREECH SPARKS MM. FUNGTION PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | OK                                          |                                                                                     |                        |                                                                            |                                                                                 | <del></del>                                                              |
| ASE SPLITS PUPTURE Complete TRETCHES AS FLASHES PREECH FLAMES PREECH SPARKS AMM. FUNCTION PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | OK                                          |                                                                                     |                        |                                                                            |                                                                                 | <del></del>                                                              |
| PUPTURE Complete TRETCHES AS FLASHES PREECH FLAMES PREECH SPARKS DIMM. FUNCTION PEMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OK                                          |                                                                                     | ,                      |                                                                            |                                                                                 | <del></del>                                                              |
| TRETCHES AS FLASHES PREECH FLAMES PREECH SPARKS DMM. FUNCTION PEMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | OK                                          |                                                                                     | ,                      |                                                                            |                                                                                 | <del></del>                                                              |
| RAS FLASHES REECH FLAMES REECH SPARKS RMM_FUNCTION REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | OK -                                        |                                                                                     | ,                      |                                                                            |                                                                                 | 1                                                                        |
| REECH FLAMES REECH SPARKS MM. FUNCTION REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | OK                                          |                                                                                     |                        |                                                                            |                                                                                 |                                                                          |
| REECH SPARKS MM. FUNCTION REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | OK                                          |                                                                                     |                        |                                                                            |                                                                                 |                                                                          |
| REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OK                                          | <u> </u>                                                                            |                        |                                                                            | 1 1                                                                             |                                                                          |
| REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | UA                                          | <u> </u>                                                                            |                        | OK.                                                                        | OK                                                                              | *                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                             |                                                                                     |                        | 1 01                                                                       | <u> </u>                                                                        | <u>*</u>                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | te rupt                                     | ture                                                                                |                        |                                                                            |                                                                                 |                                                                          |
| M CAL. 30, B. A. C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PISTOL A<br>SSK GAL.<br>SM GAL<br>SM GAL    | L. 30 M1903<br>AUTO CAL.<br>. 45 M3 M3A<br>22 M3 M4<br>50, B. M2 A0<br>50, B. M2 H8 | <b>45 M/9//A</b><br>47 | I GM C<br>GM C<br>GA C<br>GA 2<br>GA 2                                     | GAL. 50 M3<br>GAL. 60 TITE<br>GAL. 60 T59<br>AL. 60/20<br>COMM M3<br>COMM M24AI | E5<br>MK 12                                                              |
| FOREMAN.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                             |                                                                                     |                        | _W.O.O.SOUS=<br>LISTIGIAN                                                  | UA I                                                                            | IE PIREU ZU UGIL S                                                       |

Powder: HES 5232.99 Charge: 40.0 Primer: Rem #72

## FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R & D 7-56

PRIMER LOT\_AMM'N. LOT\_16-T GALISER\_7.62mm BULLET\_BALL CARTRIDGE Aluminum

| with steel adapter                                                                                | AUTOM.      | ATIC Ä                                  | SEMI-AU                                             | TOMATIC                                          | WEAPO                                | vs                                               | MFG                                     | F.A.            |
|---------------------------------------------------------------------------------------------------|-------------|-----------------------------------------|-----------------------------------------------------|--------------------------------------------------|--------------------------------------|--------------------------------------------------|-----------------------------------------|-----------------|
|                                                                                                   |             | <i></i> ≠70°F                           | GUN                                                 | DATA                                             | <b>≠</b> 165°F                       | ≠165°                                            | F                                       | -40°F           |
| TYPE OF GUN                                                                                       | HANGFIRE    | T-65                                    |                                                     |                                                  | T-65                                 | T-65                                             |                                         | T-65            |
| NO OF CUM                                                                                         | ·           | 172701                                  | <del></del>                                         | <del> </del>                                     | 472701                               | 47270                                            | <del>1</del>                            | 472701          |
| NO. OF GUN                                                                                        |             | 25795                                   | +                                                   |                                                  | 26325                                | 26365                                            |                                         | 26805           |
| ROUNDS IN GUN                                                                                     | <del></del> | P-18                                    | <del> </del>                                        | +                                                | B-18                                 | 28                                               | <del>'</del>                            | 28              |
| NO OF BARREL                                                                                      |             | 3919                                    | <del> </del>                                        | <del>    </del>                                  | 9                                    | 2865                                             |                                         | 3345            |
| ROUNDS IN BARREL                                                                                  | <del></del> | 2.184"                                  |                                                     |                                                  | 2.184"                               | 2.183                                            | <del>n</del>                            | 2.183"          |
| HEAU SPACE                                                                                        |             | .064"                                   |                                                     | <del> </del>                                     | •0611                                | .060                                             |                                         | •064"           |
| PIN PROTRUSION                                                                                    | ~           | 240                                     |                                                     |                                                  | 200                                  | 40                                               | <del></del>                             | 240             |
| ROUNDS FIRED                                                                                      | ~           | 100 - 4                                 | <del>.  </del>                                      | <del> </del>                                     | 100                                  | 40                                               |                                         | 100 - 4         |
| RDS. IN BURST OR CLIPS                                                                            |             | 2 - 1                                   | ¥ <del> </del>                                      | <del></del>                                      | 2                                    | 1                                                |                                         | 5 -             |
| NO OF BURSTS OR CLIPS                                                                             | ·           | Raker                                   |                                                     | +                                                | Baker                                | Paker                                            | <del></del>                             | Baker           |
| GUNNER                                                                                            |             | Daker                                   | _l                                                  | <u> </u>                                         | Daker                                | raker                                            |                                         | Daker           |
|                                                                                                   |             |                                         | GUN FU                                              | NCTION                                           |                                      |                                                  |                                         |                 |
| SROUP (MS)                                                                                        |             |                                         |                                                     |                                                  |                                      |                                                  |                                         |                 |
| CERO (MS)                                                                                         |             | <u> </u>                                | <u> </u>                                            |                                                  | لـــــــــــــــــــــــــــــــــــ | <u> </u>                                         |                                         |                 |
| Burn Through                                                                                      |             |                                         | DEFEC                                               | TS                                               | 4(k)                                 |                                                  |                                         |                 |
|                                                                                                   |             |                                         | 1                                                   | T                                                | 1 1                                  |                                                  |                                         |                 |
| PRIMER LEAKS                                                                                      |             |                                         | 1                                                   | <del> </del>                                     |                                      | <b>-</b>                                         |                                         |                 |
| PRIMER PERFORATIONS LOOSE PRIMERS                                                                 |             | <del> </del>                            | <del></del>                                         | <del> </del>                                     | <del> </del>                         | <del> </del>                                     |                                         |                 |
|                                                                                                   |             | 1-S                                     |                                                     | <del>  ~</del>                                   | <del> </del> -                       | <del> </del>                                     |                                         |                 |
| CASE SPLITS<br>PUPTURE Complete Ri                                                                | m Shear     |                                         | <del></del>                                         | <del> </del>                                     | 8                                    | <del>                                     </del> |                                         | · <del> </del>  |
| Crapponex Partial R                                                                               | unture      |                                         |                                                     |                                                  | <del>  °</del>                       | <del> </del>                                     |                                         | 1 (1)           |
| AS FLASHES                                                                                        | up our o    |                                         | <del>+</del>                                        | 1                                                | <del>}</del> ···—                    | <del> </del> -                                   | <del></del>                             | <del>  44</del> |
| BREECH FLAMES                                                                                     | <del></del> |                                         | <del></del>                                         | <del>                                     </del> | -                                    |                                                  |                                         |                 |
|                                                                                                   |             |                                         | 1                                                   |                                                  | +                                    | <del> </del>                                     |                                         |                 |
| BREECH SPARKS                                                                                     |             |                                         | <del> </del>                                        | <del> </del>                                     | +                                    |                                                  | . +                                     |                 |
| AMM. FUNCTION<br>REMARKS:                                                                         | <del></del> | <del></del>                             |                                                     |                                                  | <u> </u>                             | l Ox                                             | ———— <u>————</u>                        |                 |
| * 8 stoppa ges                                                                                    | due to r    | im shears                               | - changed                                           | barrel af                                        | ter the bu                           | irn thr                                          | ough app                                | eared           |
|                                                                                                   |             |                                         |                                                     |                                                  |                                      |                                                  |                                         |                 |
|                                                                                                   |             | 0,4,0,0                                 | 44 70 4400                                          | 7.4.7                                            |                                      | 41 50                                            | W2 46                                   |                 |
|                                                                                                   |             |                                         | AL30 M/903                                          |                                                  |                                      | AL50<br>AL .60                                   |                                         |                 |
| M GAL. 30, B. A. G.                                                                               |             | PISTOL                                  | AUTO GAL                                            | 45 M1911A1                                       | GM C                                 | AL60                                             | T17E5                                   |                 |
| M CAL 30, B. M1917A1<br>M CAL 30, B. A. G.<br>M CAL 30, B. M1919A4                                |             | PISTOL<br>GSM GAL                       | AUTO GAL<br>45 M3-M3.                               | 45 M1911A1                                       | GM C<br>GM C                         | AL60<br>AL60                                     | T17E5<br>T59                            |                 |
| M CAL. 30, B. A. C.<br>M CAL. 30, B. M/9/9A4<br>M CAL. 30, B. M/9/9A6                             |             | PISTOL<br>GSM GAL<br>GM CAL.            | AUTO CAL<br>45 m3-m3.<br>.22 m3-m4                  | 45 M1911A1<br>A1                                 | GM C<br>GM C<br>GA G                 | AL60<br>AL60<br>AL60                             | TI7E5<br>T59<br>/20 MK 12               |                 |
| M CAL. 30, B. A. C.<br>M CAL. 30, B. M1919A4<br>M CAL. 30, B. M1919A6<br>R.A. CAL. 30, B. M1918A2 |             | PISTOL<br>GSM GAL<br>GM CAL.<br>GM CAL. | AUTO GAL<br>45 M3-M3.<br>.22 M3-M4<br>.50, B. M2 AG | <b>45 M</b> 1911 <b>A1</b><br>A1                 | GM C<br>GM C<br>GA C<br>GA 2         | AL60<br>AL60<br>AL60,<br>O MM M                  | TITE5<br>T59<br>/20 MK 12               |                 |
| M CAL. 30, B. A. C.<br>M CAL. 30, B. M/9/9A4<br>M CAL. 30, B. M/9/9A6                             | Sey in S    | PISTOL<br>GSM GAL<br>GM CAL.<br>GM CAL. | AUTO CAL<br>45 m3-m3.<br>.22 m3-m4                  | <b>45 M</b> 1911 <b>A</b> 1<br>A1<br>G           | GM G<br>GM C<br>GA C<br>GA 2<br>GA 2 | AL60<br>AL60<br>AL60,<br>O MM M<br>O MM M        | TITE5<br>T59<br>/20 MK 12<br>13<br>24AI | 250 20 Oct. 58  |

Powder: HES 5232.99

Charge: 40.0

Primer: Rem #72

# FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R & D 7-56 AUTOMATIC & SEMI-AUTOMATIC WEARONS

PRIMER LOT TRIBCT

AMM'N. LOT 16\_T\_R

CALIBER T\_62mm

BULLET Ball

CARTRIDGE Aluminum

MFG. F\_A

ARMT-HARITAN ARSENALIRAPDI.METUCHEN.MJ-52-1795

| 165 <sup>0</sup> F                       |                                         | Thick<br>heads | GUN                                     | DATA         | High<br>Primer                          | Trip<br>Ups                  | Long Head<br>to shoulde |
|------------------------------------------|-----------------------------------------|----------------|-----------------------------------------|--------------|-----------------------------------------|------------------------------|-------------------------|
| TYPE OF GUN                              | HANGFIRE                                |                |                                         |              |                                         |                              |                         |
|                                          | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | T-65           |                                         | <u> </u>     | T-65                                    | T-65                         | T65                     |
| NO. OF GUN                               |                                         | 472701         |                                         |              | 472701                                  | 1,72701                      | <u> </u>                |
| ROUNDS IN GUN                            |                                         | 27247          |                                         | 1            | 27218                                   | 27213                        | 27209                   |
| NO OF BARREL                             |                                         | 28             |                                         |              | 28                                      | 28                           | 28                      |
| ROUNDS IN BARREL                         | <u></u>                                 | 3786           |                                         | l            | 3758                                    | 3753                         | 3749                    |
| HEAD SPAGE                               |                                         | 2.183"         | <u> </u>                                |              | 2.183*                                  | 2.183*                       | 2.183*                  |
| PIN PROTRUSION                           |                                         | •064ª          |                                         |              | *06L#                                   | *06/1 <sub>a</sub>           | -06u=                   |
| ROUNDS FIRED                             |                                         | 12             |                                         | 1            | 5                                       | 2                            |                         |
| ROS. IN BURST OR CLIPS                   |                                         | 12             |                                         | 1            | 5                                       | 2                            |                         |
| NO. OF BURSTS OR CLIPS                   |                                         | 1              |                                         |              | 11                                      | 1                            | 1                       |
| GUNNER                                   |                                         | Gambino        | )                                       |              | Cambino                                 | Gambino                      | Gambin                  |
|                                          |                                         |                | GUN FU                                  | NCTION       |                                         |                              |                         |
| GROUP (MS)                               |                                         |                |                                         |              |                                         |                              |                         |
| ZERO (MS)                                |                                         |                |                                         |              |                                         |                              |                         |
|                                          |                                         |                | DEFEC                                   | <i>TS</i>    |                                         |                              |                         |
| PRIMER LEAKS                             |                                         |                | <del>- 1</del>                          | 1            | <del></del>                             | <del></del>                  |                         |
| PRIMER PERFORATIONS                      |                                         |                | 1                                       | 1            | 1                                       |                              |                         |
| LOOSE PRIMERS                            | İ                                       |                |                                         | <b>†</b>     | †                                       |                              |                         |
| CASE SPLITS                              |                                         |                |                                         |              |                                         |                              |                         |
| RUPTURE                                  |                                         |                | <del></del>                             | †            | <b>+</b>                                |                              |                         |
| STRETCHES                                |                                         |                | <del></del>                             | <del> </del> |                                         |                              |                         |
| GAS FLASHES                              |                                         |                |                                         | 1            | 1                                       |                              |                         |
| BREECH FLAMES                            |                                         |                |                                         | 1            |                                         |                              |                         |
| RREECH SPARKS                            |                                         |                |                                         | 1            | 1                                       |                              |                         |
| AMM. FUNCTION                            |                                         | QK_            | · † · · · · · · · · · · · · · · · · · · | 1            | OK                                      | OK                           | OX                      |
| REMARKS:                                 |                                         |                |                                         |              |                                         |                              |                         |
|                                          |                                         |                |                                         |              |                                         |                              |                         |
|                                          |                                         |                |                                         |              |                                         |                              |                         |
|                                          |                                         |                |                                         |              | *************************************** | ·                            | ···                     |
|                                          |                                         |                |                                         |              | <del></del>                             |                              |                         |
|                                          |                                         |                |                                         |              |                                         |                              |                         |
|                                          |                                         |                |                                         |              |                                         | ·····                        |                         |
| SM CAL. 30, B. M1917A1                   |                                         |                | AL.,30 M1903<br>AUTO GAL                |              |                                         | AL.,50 M3 AC<br>AL.,60 TITES | ;                       |
| im GAL30, B.A.G.<br>im GAL30, B. M1919A4 |                                         |                | L. 45 M3-M3/                            |              |                                         | L60 77723                    |                         |
|                                          |                                         |                | L43 M3 M3,<br>22 M3·M4                  | 7,           |                                         | L60/20 MA                    | . 10                    |
| M CAL. 30, B. M1919A6                    |                                         |                | 22 M3 M4<br>50, B. M2 AC                | •            |                                         | 1150/20 MR<br>2.MM M3        | 76                      |
| P.A. GAL30,B. M1918A2<br>P.U.S. GAL30 M1 |                                         |                | 50, B. M2 HB                            |              |                                         | OMM METAL                    |                         |
|                                          |                                         | UM UAL.        | .JU, D. ME ME                           |              |                                         |                              | 00 10 1 10              |
| RECORDER Seixa                           | q                                       |                |                                         |              | ירט סלם מש                              | ラナリーシナ カタナデ                  | FIRED 20 Dct 58         |

Powder: HFS 5232.99 Charge: 10.0 Primer: Rem #72

### FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R & D 7-56

PRIMER LOT\_ AMM'N. LOT\_16\_T\_R GALIBER 7.62mm BULLET Ball GARTRIDGE Almainum

| AUTOM                                 | 47/C ª                               | SEMI-AUT                                             | TOMATIC                                | WEAPONS                                                             |                                                                             |                                                                             |                                                                             |
|---------------------------------------|--------------------------------------|------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|                                       | <i>∮</i> 70 <b>°</b> F               | 1165 FIN                                             | DATAOF                                 |                                                                     | or                                                                          | <b>∠</b> 165 <b>°</b> F                                                     |                                                                             |
| HANGFIRE                              |                                      |                                                      |                                        |                                                                     | _                                                                           |                                                                             |                                                                             |
| · · · · · · · · · · · · · · · · · · · |                                      | 1,72701                                              | 1,72701                                |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       |                                      |                                                      | 27070                                  |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       |                                      |                                                      | 28                                     | 1 1                                                                 | <del></del> _                                                               | 1                                                                           |                                                                             |
|                                       |                                      |                                                      |                                        | 1/12                                                                | 17                                                                          | 111,95                                                                      |                                                                             |
|                                       | 2.1811                               |                                                      |                                        |                                                                     |                                                                             | 2.188*                                                                      |                                                                             |
|                                       |                                      |                                                      |                                        | <del></del>                                                         |                                                                             |                                                                             |                                                                             |
|                                       | 50                                   |                                                      | 25                                     | 27                                                                  |                                                                             | 25                                                                          |                                                                             |
|                                       | 50                                   | 135                                                  |                                        | <del></del>                                                         | - 7                                                                         | 20 - 5                                                                      |                                                                             |
|                                       | 1                                    | i                                                    | l 1                                    |                                                                     |                                                                             | 1-1                                                                         |                                                                             |
|                                       | Baker                                | Baker                                                | Baker                                  | Gen                                                                 | bino                                                                        | Gambino                                                                     |                                                                             |
| ·                                     | *                                    |                                                      |                                        |                                                                     |                                                                             | <del></del>                                                                 |                                                                             |
|                                       |                                      |                                                      |                                        |                                                                     |                                                                             |                                                                             | 1                                                                           |
| <u> </u>                              |                                      |                                                      | <u> </u>                               | <u> </u>                                                            | <u> </u>                                                                    |                                                                             | ᆜ_                                                                          |
|                                       |                                      | DEFEG                                                | <i>TS</i>                              |                                                                     |                                                                             | S-K                                                                         |                                                                             |
|                                       |                                      |                                                      |                                        |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       |                                      |                                                      |                                        |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       |                                      |                                                      |                                        |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       |                                      |                                                      |                                        | 2                                                                   | - I                                                                         |                                                                             |                                                                             |
|                                       |                                      |                                                      |                                        |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       | L                                    |                                                      | <u> </u>                               |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       |                                      |                                                      |                                        |                                                                     |                                                                             | <b></b>                                                                     |                                                                             |
|                                       |                                      | <b></b>                                              |                                        | <del>                                     </del>                    |                                                                             | <del>                                     </del>                            |                                                                             |
|                                       |                                      |                                                      | L                                      | <u> </u>                                                            |                                                                             | <del></del>                                                                 |                                                                             |
| L                                     | OK                                   | OK                                                   | l ok _                                 | <u> </u>                                                            |                                                                             | <u> </u>                                                                    |                                                                             |
| ue to bur                             | n through                            | 1                                                    |                                        |                                                                     |                                                                             |                                                                             |                                                                             |
|                                       | PISTOL<br>GSM GA<br>GM GAL<br>GM GAL | AUTO GAL<br>L. 45 M3°M3'<br>22 M3°M4<br>50, B. M2 AG | 45 <i>M1911A1</i><br>47<br>7           | GM GAL6<br>GM GAL6<br>GA GAL6<br>GA 20 MM<br>GA 20 MM               | 60 T/7.<br>60 T59<br>60/20<br>M3<br>M24A                                    | ES<br>MK IZ<br>I                                                            |                                                                             |
| Selxas                                |                                      |                                                      |                                        | 7. 0. 10 <u>-0</u> 0                                                | DA                                                                          | TE FIRED ZO O                                                               | ·                                                                           |
|                                       |                                      | Ch                                                   | IIEF BALLI                             | STIGIAN                                                             |                                                                             | ·                                                                           |                                                                             |
|                                       | ue to bury                           | ### AUTOMATIC & ###################################  | ### ### ############################## | ### AUTOMATIC & SEMI-AUTOMATIC  ################################### | ### AUTOMATIC & SEMI-AUTOMATIC WEAPONS  ################################### | ### AUTOMATIC & SEMI-AUTOMATIC WEAPONS  ################################### | ### AUTOMATIC & SEMI-AUTOMATIC WEAPONS  ################################### |

Powder: HES 5232.99 Charge: 40.0

#### FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST R & D 7-56

PRIMER LOT rejects AMM'N. LOT 16-0 GALIBER 7.62mm Rall BULLET CARTRIDGE Aluminum F.A.

ARMY-RARITAN ARSENALIRAPDI.METUCHEN.NJ-52-1793

AUTOMATIC & SEMI-AUTOMATIC WEAPONS Primer: Kem #72 MFG.\_\_\_\_ with steel adapter Thickoun DAThin Head Head Trip Cut Long Long head 165 F Profile to shoulder Uns Head TYPE OF GUN HANGFIRE T-65 T-65 T-65 T-65 T-65 472701 72701 172701 472701 472701 472701 **472701** NO. OF GUN 27208 27271 27222 ROUNDS IN GUN 27235 27229 27228 27225 28 28 28 28 28 28 28 NO. OF BARREL 3762 3768 3765 3748 ROUNDS IN BARREL 3810 3774 3769 2.183 2,1R3" 2.183m 2.183" 2.183" WEADX SPACE B.S. 2.183° 2.183" •065" ·064# •06<u>4</u>" •06jr<sub>ii</sub> ·06/11 •06<u>L</u>" •06h# PIN PROTRUSION ROUNDS FIRED 5/1 ROS. IN BURST OR CLIPS NO. OF BURSTS OR CLIPS Gambino Cambino Cambino Gambino Gambino Gambino **GUNNER** GUN FUNCTION GROUP (MS) ZERO (MS) DEFECTS PRIMER LEAKS PRIMER PERFORATIONS LOOSE PRIMERS CASE SPLITS 1 - SJ 1 - SJ RUPTURE STRETCHES GAS FLASHES BREECH FLAMES BREECH SPARKS AMM. FUNCTION REMARKS GM CAL. 30, B. M1917A1 R.U.S. CAL. 30 M1903A3 GM GAL. .50 M3 AG GM CAL. GO TITES PISTOL AUTO CAL. .45 MIGIIAI GM GAL. .30, B. A. G. GM GAL. 30, B. M/9/9A4 GSM CAL. . 45 M3-M3A/ GM CAL. . 60 759 GM GAL .. 22 M3-M4 GA GAL. . 60/20 MK 12 GM CAL. 30.8. M1919A6 GM CAL. .50, B. M2 AC GA 20 MM M3 R.A. CAL. .30, B. M1918 A2 6A 20MM M24A1 W.O. 83805-10-01 DATE FIRED 20 Oct 58 R.U.S. CAL. 30 MI GM CAL . 50, 8. M2 HB

Seixas

RECORDER ....

FOREMAN\_

\_ GHIEF BALLISTICIAN\_

| Powder: IFS 5232.                  | 9 FRAN              | KFORD             | ARSENAL                               | PROOF   | HOUSE          | PRIMER LOT                   | -0     |
|------------------------------------|---------------------|-------------------|---------------------------------------|---------|----------------|------------------------------|--------|
| Charge: 40.0                       | FUNC                |                   | <i>AND GA</i> .<br>D7 <del>-</del> 56 | SUALTY  | TEST           | BULLET Pall CARTRIDGE Alumin | 111777 |
| Primer: Kem #72 with steel adapter | AUTOMA              | ATIC &            | ŠEMÍ-AUTO                             | MATIC I | WEAPONS        | MFG.                         |        |
|                                    |                     | <i></i> 70°F      | GUN L                                 | DATA    | <b>4</b> 165°F | <b>47</b> 0°F                |        |
| TYPE OF GUN                        | HANGFIRE            | T-65              |                                       |         | T-65           | Tlili                        |        |
| NO. OF GUN                         |                     | 472701            |                                       |         | 472701         | 1491                         |        |
| ROUNDS IN GUN                      |                     | 26085             |                                       |         | 26525          | 14502                        |        |
| NO. OF BARREL                      |                     | P-18              |                                       |         | 28             |                              |        |
| ROUNDS IN BARREL                   |                     | 4209              |                                       |         | 3065           | 11,502                       |        |
| HEAD SPACE                         |                     | 2.184"            |                                       |         | 2.183*         | 2.186*                       |        |
| PIN PROTRUSION                     |                     | •06hii            |                                       |         | -06lin         | .057*                        |        |
| ROUNDS FIRED                       |                     | 240               |                                       |         | 240            | 280                          |        |
| RDS. IN BURST OR CLIPS             |                     | 100 - 40          |                                       |         | 100 - կ0       | 20                           |        |
| NO. OF BURSTS OR CLIPS             |                     | 2 - 1             | <u> </u>                              |         | 2 - 1          | 74                           |        |
| GUNNER                             |                     | E ker             |                                       |         | Baker          | Cambino                      |        |
|                                    |                     |                   | GUN FUN                               | STION   |                |                              |        |
| GROUP (MS)                         |                     |                   |                                       | 7       |                |                              |        |
| ZERO (MS)                          |                     |                   |                                       |         |                |                              | $\Box$ |
| Flow Back of Metal                 | in Primer           | Pocket            | DEFECT                                | 5       |                | 90%                          |        |
| PRIMER ' TAKS                      | ļ                   | !<br><del>}</del> | <del> </del>                          |         | <u>i</u>       |                              |        |
| PRIMER PERFORATIONS                |                     | ļ. <u>.</u>       | <del> </del>                          |         | <del></del>    |                              |        |
| LOOSE PRIMERS                      | <b> </b>            | <b> </b>          | <del> </del>                          |         |                | <del>-</del>                 |        |
| CASE SPLITS  AND PORTS Complete Ri | m <sup>S</sup> hear | 3                 |                                       |         |                |                              |        |
| STRETGHES                          | l                   |                   | <u> </u>                              |         |                |                              |        |
| GAS FLASHES                        |                     | <u> </u>          |                                       |         |                |                              |        |
| BREECH FLAMES                      |                     | ļ                 | Į                                     |         |                |                              |        |
| BREECH SPARKS                      |                     |                   | ļ                                     |         |                |                              |        |
|                                    |                     | ₩                 | 1                                     |         | OK L           | 1                            |        |

GM GAL. 30, B. M1917A1 GM GAL. 30, B. A. C. GM CAL. 30, B. M/9/9A4 GM GAL. 30, B. M!9!9A6 R.A. GAL..30, B. M1918 A2 R.U.S. CAL. 30 MI RECORDER Sanger - Seixas

R.U.S. CAL. 30 M1903A3 PISTOL AUTO CAL. .45 MISIIAI GSM GAL. . 45 M3-M3A1 GM GAL .. 22 M3-M4 GM CAL..50, B. ME AG GAI GAL. 50, 8. M2 HB

6M GAL. .50 M3 AG GM CAL. .60 TITES GM CAL. .60 T59 GA GAL. .60/20 MK 12 GA 20 MM M3

6A 20MM M24A1 W.O. 83805-10-01 DATE FIRED 20 Oct 58

ARMY-HARITAN ARSENAL (RAPD). METUCHEN.MJ-52-1705

\_ CHIEF BALLISTICIAN....

| HES 5232.99                                                                                                         | FRAN          | KFORD      | ARSEN                    | AL PROOF      | F HOUSE                         | PRIMER LOT.                     |              |
|---------------------------------------------------------------------------------------------------------------------|---------------|------------|--------------------------|---------------|---------------------------------|---------------------------------|--------------|
| 40.0 grains                                                                                                         |               |            |                          | -             |                                 | GALIBER                         | 7,62mm       |
| 40.0 g. m. m.                                                                                                       | FUNC          | TION       | AND C                    | ASUALT        | Y TEST                          | BULLET                          | Ball         |
|                                                                                                                     |               |            | D 7-56                   |               |                                 | CARTRIDGE_                      | Alum         |
| Reminston #72                                                                                                       | AUTOMA        | ATIC &     | SEMI-AL                  | TOMATIC       | WEAPONS                         | MFG.                            | FA           |
| with steel adapter                                                                                                  |               |            |                          |               |                                 | <u> </u>                        |              |
| 165 <sup>o</sup> f                                                                                                  |               | Large Hea  |                          | DATA          |                                 |                                 |              |
| TYPE OF GUN                                                                                                         | HANGFIRE      | T6-5       |                          |               |                                 |                                 |              |
| NO. OF GUN                                                                                                          |               | 472701     |                          | }             | <del></del>                     |                                 |              |
| ROUNDS IN GUN                                                                                                       |               | 27873      |                          |               | <del> </del>                    |                                 |              |
| NO GE BARREL                                                                                                        |               | 28         | <u> </u>                 |               | ·                               |                                 |              |
| ROUNDS IN BARREL                                                                                                    |               | 4412       |                          |               | +                               |                                 |              |
| SPACE B.S.                                                                                                          |               | 2.183"     | -{                       |               | <del></del>                     |                                 |              |
| PIN PROTRUSION                                                                                                      |               | .064"      | +                        |               | <del> </del>                    | <del></del>                     |              |
| ROUNDS FIRED                                                                                                        |               | 418        |                          | <del></del>   | <del> </del>                    |                                 |              |
| ROS. IN BURST OR CLIPS                                                                                              |               | 100 - 18   | <del> </del>             | <del></del>   | <del></del>                     |                                 | <del> </del> |
| NO. OF BURSTS OR CLIPS                                                                                              |               | 4 - 1      | <del> </del>             |               | <del></del>                     |                                 | <del></del>  |
| UNNER                                                                                                               | L             | Ganbino    | <u> </u>                 |               |                                 |                                 |              |
|                                                                                                                     |               |            | GUN F                    | UNGTION       |                                 |                                 |              |
| ROUP (MS)                                                                                                           |               |            |                          |               |                                 |                                 |              |
| ERO (MS)                                                                                                            |               | LL_        | <u> </u>                 |               | <u> </u>                        |                                 |              |
|                                                                                                                     |               |            | DEFE                     | CTS           |                                 |                                 | ····         |
| PRINER LEAKS                                                                                                        |               |            |                          |               | ļ <u>.</u>                      |                                 |              |
| PRIMER PERFORATIONS                                                                                                 |               | L          |                          |               | <u> </u>                        |                                 |              |
| COSE PRIMERS                                                                                                        |               | ļ. <u></u> |                          |               | ļ                               |                                 |              |
| CASE SPLITS                                                                                                         |               |            | <u> </u>                 |               | <u> </u>                        |                                 |              |
| RUPTURE                                                                                                             |               |            |                          |               | <del>,  -</del>                 |                                 |              |
| STRETGHES                                                                                                           | <u></u>       |            | <b></b>                  |               | 1                               |                                 |              |
| AS FLASHES                                                                                                          | Ļ <del></del> |            |                          |               | <del></del>                     |                                 |              |
| BREECH FLAMES                                                                                                       | <b>i</b>      | <b></b>    |                          |               | <del></del>                     |                                 |              |
| BREECH SPARKS                                                                                                       | <u> </u>      |            | <u> </u>                 |               | <del></del>                     |                                 | <del> </del> |
| AMM. FUNCTION                                                                                                       | <u> </u>      | L_OK       |                          | <u> </u>      |                                 |                                 |              |
| REMARKS:                                                                                                            |               |            | <del></del>              |               |                                 |                                 |              |
| ·<br>                                                                                                               |               |            |                          |               |                                 |                                 |              |
|                                                                                                                     |               |            |                          |               |                                 |                                 |              |
|                                                                                                                     |               |            |                          |               |                                 |                                 |              |
|                                                                                                                     |               |            |                          |               | <del></del>                     |                                 |              |
|                                                                                                                     |               |            |                          |               |                                 |                                 |              |
|                                                                                                                     |               |            |                          |               |                                 |                                 |              |
|                                                                                                                     |               |            |                          |               |                                 |                                 |              |
|                                                                                                                     |               |            |                          |               |                                 |                                 |              |
| GM CAL 30, B. M1917A1                                                                                               |               | RUS G      | AL30 M19                 | 03.43         | GM CAL.                         | .50 M3 AC                       |              |
| SM CAL. 30, B. MISITAT<br>SM CAL. 30, B. A. G.                                                                      |               |            |                          | 45 MISIIAI    |                                 | .60 TITES                       |              |
| IM UME. IVV; D. M. V.                                                                                               |               |            | L. 45 M3 M               |               | GM CAL.                         |                                 |              |
| M CAL 30. R. MISISA4                                                                                                | 1             | GSM GA     |                          |               |                                 |                                 |              |
| M CAL. 30, B. M1919A4                                                                                               |               |            |                          |               |                                 |                                 |              |
| M CAL. 30, B. M/9/9/46                                                                                              | •             | GM CAL     | 22 M3 · M                | •             | GA GAL.                         | .60/20 MK 12                    |              |
| M CAL. 30, B. M1919A6                                                                                               | •             | GM CAL.    | 22 M3 · M·<br>.50, B. M2 | 4<br>AC<br>HB | GA GAL.<br>GA 20 MA<br>GA 20 MA | .60/20 MK 12<br>N M3<br>N M24A1 |              |
| RM CAL. 30, B. M1919A4<br>RM CAL. 30, B. M1919A6<br>R.A. CAL. 30, B. M1918A2<br>R.U S. CAL. 30 M1<br>RECORDER Seixe | •             | GM CAL.    | 22 M3 · M                | 4<br>AC<br>HB | GA GAL.<br>GA 20 MA             | .60/20 MK 12<br>N M3<br>N M24A1 | o 20 Oct 3   |

ARMY-RARITAN ARSENALIRAPDI-METUCHEN-NJ-52-1795

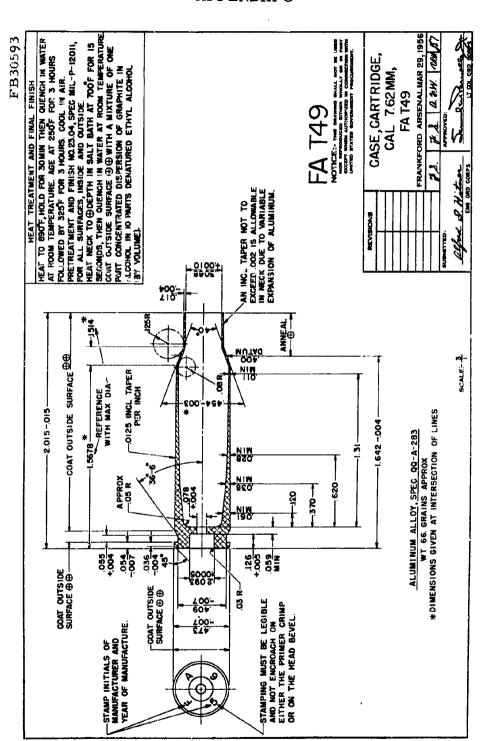


Figure C-1

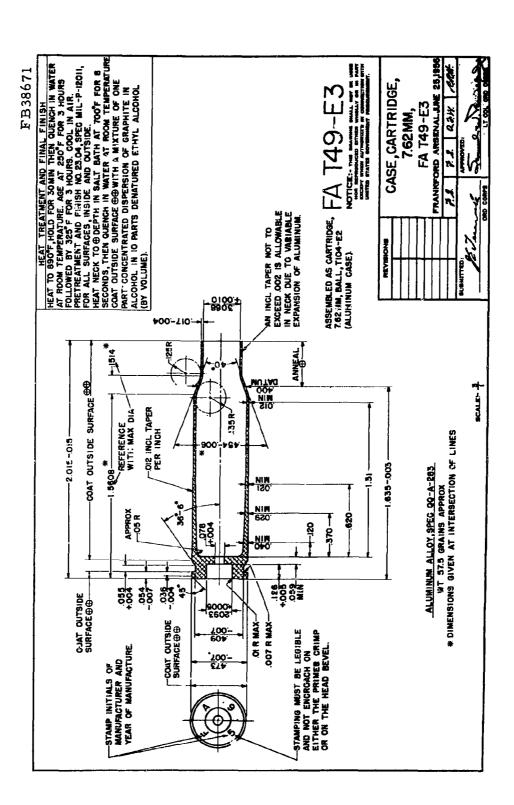


Figure C-3

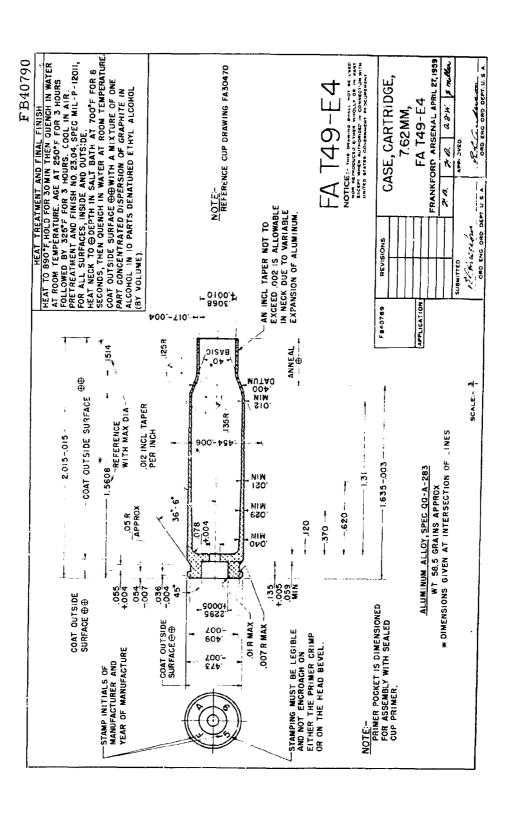
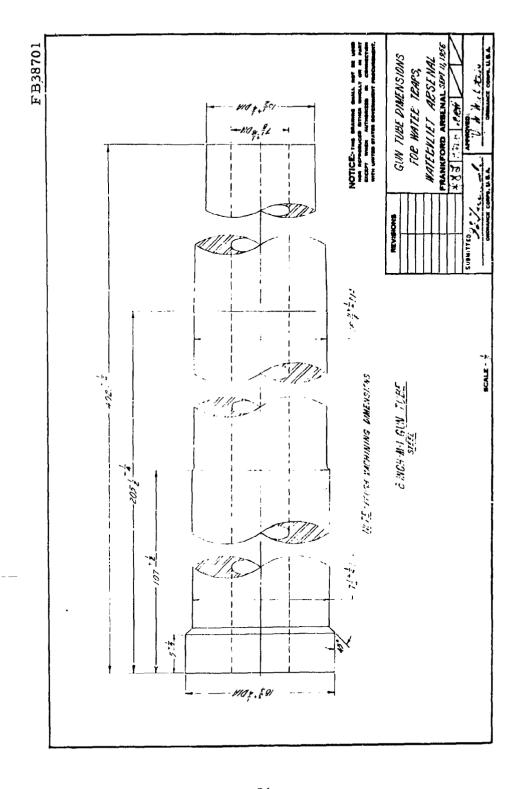


Figure C-4



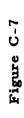
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|-----------|-------------------------------|----------|---------------------------|-------------------------------------------|---------------------------------|------------------|
|           |                               | J<br>J   | AN (                      | PLAN OF WORK                              |                                 |                  |
| 2         | 8                             | DRAWING  | DRAWING NUMBER TOOL BLANK | NO OPERATION                              | DRAWING                         | NUMBER<br>PI ANK |
|           | CASE                          | FB38671  |                           | WASH, RINSE, ORY.                         |                                 |                  |
|           | BLANK & CUP                   |          |                           |                                           |                                 |                  |
|           | BLANK FUNCH                   | FB39356  |                           | ANNEAL - 700°F FOR 1/2 HR.                |                                 |                  |
|           | BLAWK PUNCH (ALT.)            | F838703  |                           |                                           |                                 |                  |
|           | HOWNO ON                      | DO18687  |                           | MASH, RINSE, DRY & CUBRICATE              |                                 |                  |
|           | BLANK & CUP DIE (ALT)         | 5838705  |                           | MOROCOSE                                  |                                 |                  |
| L         | 512£ DIE                      | 1839355  |                           | DUNCH                                     | E690781                         |                  |
|           | DIE ANVIL                     | F5A3679  |                           | 70 OVE                                    | F5A6804                         |                  |
|           | STRIPPER                      | F838706  | <br> <br> -               | BOTTOM DIE                                | F3A6B0d                         |                  |
|           | STRIPPER HOLDER               | F5A3682  |                           | STRIPPER (TYPE*19)                        | F810858                         |                  |
|           | STRIPPER SPRING               | F543682  |                           |                                           |                                 |                  |
|           |                               |          |                           | NASH, RINSE, DRY                          |                                 |                  |
|           | WASH, RINSE, DRY              |          |                           |                                           |                                 |                  |
|           | 0 7000                        |          |                           | ANNEAL . 700°F FOR 12 HR.                 |                                 |                  |
| 1         |                               |          |                           | 14 7 7 7 00 1 1 0 1 1 0 0 1 1 1 0 1 1 1 1 |                                 |                  |
| I         | WIDSH RINSE OPY & LUBRICATE   |          |                           | WHSH, KINSE, OKY & LUBKICHIE              |                                 |                  |
|           |                               |          |                           | ATHORAW                                   |                                 |                  |
|           | 1ST DRAW                      |          |                           | PUNCH                                     | 1886883                         |                  |
| L         | PUNCH                         | F838707  |                           | 709 016                                   | FS96805                         |                  |
|           | TOP DIE                       | 8018887  |                           | N DIE                                     | PT132                           |                  |
|           | BOTTOM DIE                    | FB3B709  |                           | STRIPPER (TYPE#12)                        | F810858                         |                  |
|           | STRIPPER                      | F838710  |                           | WASH, RINSE, DRY                          | <br>                            | <br>             |
|           | PLATE BUSHING                 | F838715  |                           |                                           |                                 |                  |
| $\rfloor$ | DIE RING                      | F8387/6  |                           | ¥.                                        | NOTICE: THE BRATHS THEE SHELL I | ALL MAY IN COMP. |
| $\coprod$ | WASH, RINSE, ORY              |          |                           |                                           | EXCEPT WHEN ANTHORNESS          | III COMMETTION   |
|           | ANNERT - 760°F FOR "NHE       |          |                           | REVISIONS                                 | MALL 3201010013301              | 100000           |
| L         |                               |          |                           | W 03-27-5974                              | クシャン・コンドン・アン                    | מבי ייסרווווי    |
| Ц         | WASH, RINSE, DRY OL LUBRICATE |          |                           |                                           | ,59 T49-E3 (PLUM)               | (MIN)            |
|           | 7                             |          |                           |                                           | PLAN. OF WORK                   | VORK             |
| 1         | CHUKAW                        |          |                           |                                           | AAN 16 7033 IAWADON GOODWAN     | 1 cror st 166    |
| 1         | TOO OFF                       | 61111    |                           |                                           | To the second                   |                  |
| 1         | HOTTONG DIE                   | CACACACA |                           |                                           | מיני עי                         |                  |
| I         | CTDIDDED (TVDERIO)            | COORCA   |                           | SUBMITTED                                 | <u> </u>                        | Ļ                |
| Ţ         | ٦                             | 10/00/00 |                           | al Culinon                                | 1                               | 247              |
|           |                               |          |                           | CHOMANCE COMPS, S.                        | BA ENG. OFFICE                  | T COMPLETE       |

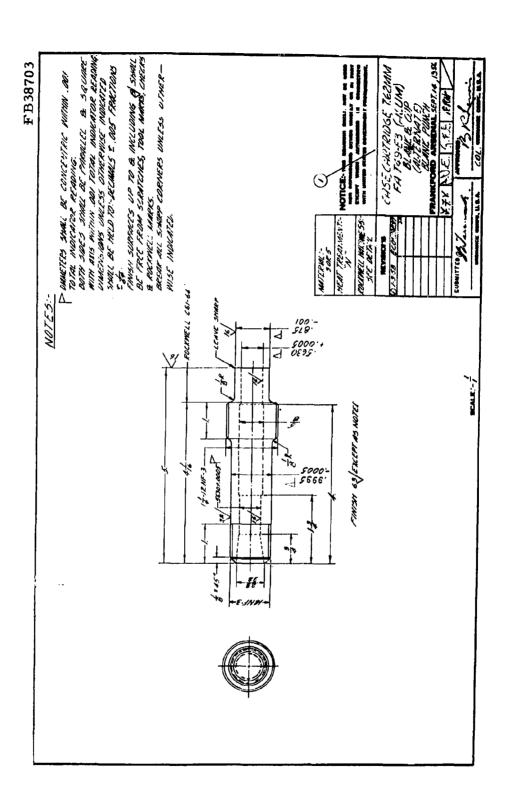
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| 5      | NOTABLE                               | DRAWING | NUMBER | NO. FAGRAGO                         | DRAWING                        | NUMBER                                  |
|        | OFENA                                 | TOOL    | - 11   |                                     | TOOL                           | BLANK                                   |
| ۲      | FIRST TRIM                            |         |        | 2no TAPER                           |                                |                                         |
| Г      | SPINOLE                               | F546117 |        | SHOULDER DIE                        | F846143                        | ,                                       |
| Γ      | 3/3378                                | FSA6118 |        | BODY DIE                            | FSHGIGG                        |                                         |
| Γ      | BURRING CUTTER                        | 6546119 |        | DIE ANVIL                           | 1246141                        |                                         |
| Γ      | NUT                                   | F546120 |        | EJECT STEM                          | F5A6145                        |                                         |
| Г      | CUTTER                                | 92110   |        | P1.UG                               |                                |                                         |
| Γ      | STRIPPER RING                         | FSA6122 |        | PUNCH                               | F5A6146                        |                                         |
| Γ      | SPRING                                | F546123 |        |                                     |                                |                                         |
| 1      | HEAD                                  |         |        | WASH, RINSE, DRY                    |                                |                                         |
| Н      | HOLDER                                | F840694 |        |                                     |                                |                                         |
|        | PUNCH ANVIL                           | PTIOGO  |        | FINISH TRIM (VERTICAL)              |                                |                                         |
| Г      | PUNCH                                 | F840695 |        | CUTTER                              | PT1010                         |                                         |
| Г      | DIE                                   | F5A6131 |        | CUTTER HOLDER                       | FSA6147                        |                                         |
| _      | TIMINE 310                            | F546132 |        | RETAINER SEAT                       | F5A6150                        |                                         |
| П      | EJECT STEM                            | F546133 |        | CASE SUPPORT                        | F596149                        |                                         |
| ╛      |                                       |         |        | SUPPORT COVER                       | 621965                         |                                         |
| 7      | WASH, RINSE, DRY                      |         |        | CUTTER CLAMP                        | 6219853                        |                                         |
| $\top$ | HEAD TURN                             |         | -      | VENT (PRIMER MACHINE)               |                                |                                         |
| П      | 9                                     | F340696 |        |                                     |                                |                                         |
| Г      | 000                                   | PT1007  |        | SOLUTION HEAT TREAT                 |                                |                                         |
| Г      |                                       | PT1008  |        | (HEAD STACKED DOWN) 900°F FOR " HR. |                                |                                         |
| П      | SPRING                                | 600113  |        |                                     |                                |                                         |
|        | WASH, RINSE, DRY                      |         |        |                                     |                                |                                         |
|        |                                       |         |        | NOTIC                               | NOTICE: THE BEALTH BEALTH      | AL. ser' at sem                         |
| T      | ANNEHL - 150°F FOR ZHRS, COOL HT 50°F |         |        |                                     |                                | *************************************** |
| Т      | FER HR. 10 400 F, COOL HT ROOM TEMP.  |         |        | 2 ATTM                              | JANTIES GYATTA SQUESTELL       | Ary seoccement.                         |
| T      | SPREHO MOLITH                         |         |        | NEVISIONS                           |                                | 7//0//                                  |
| Γ      | PUNCH                                 | 6546138 |        | 5cm                                 | CHOCKLIKINGE, LOCIVIN          | 1.600.11                                |
| Γ      | IST TAPER                             |         |        |                                     | F1 T49-E3 (ALUM)               | (ALUM)                                  |
| Π      | SHOULUER DIE                          | F5A6139 |        |                                     | NOWN SO IND IO                 | 1000                                    |
|        | 500 X COD                             | F546140 |        |                                     | TO ALEX                        | ZKY.                                    |
| T      |                                       | F596141 |        | FRANK                               | FRANKFORD ARBENAL SEPT.26 1956 | LSEPT.26/93                             |
| Т      | EJECT STEM                            | FSA6142 |        | 077                                 | 1808                           |                                         |
| T      |                                       |         |        | SUBBITTED                           | APPROVED                       |                                         |
| Τ      |                                       |         | T      | R. C. Condino                       |                                | tine.                                   |
| П      |                                       |         |        | ORDHANCK CORPS. SLS.A.              | £.46.000mm                     | MANCE COMPR. U.S.A.                     |

Figure C-6-2

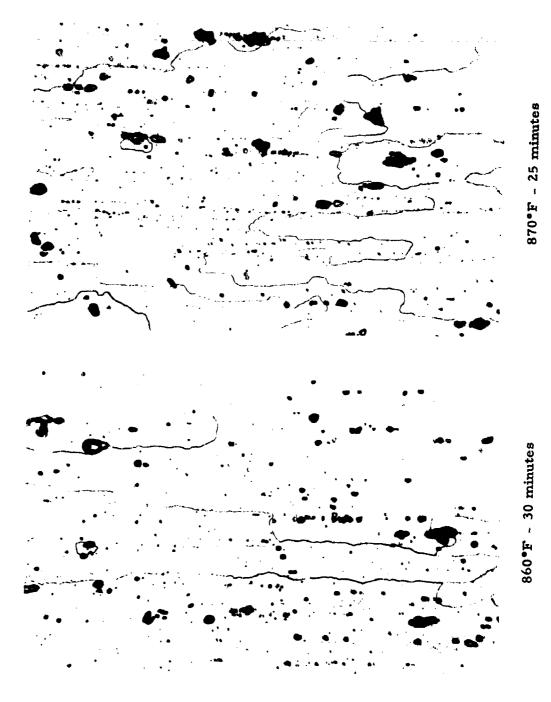
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| 2        | OPERATION                       | DRAWING | NUMBER | NO OPERATION |               | DRAWING                     | NUMBER             |
| floor    | DEF HORDEN                      | 1       |        |              |               |                             |                    |
| $\prod$  | 250°F FOR 3HRS COOL FOR I HR.   |         |        |              |               |                             |                    |
|          | 325% FOR SHES COULHI KOUM ICHII |         |        |              |               |                             |                    |
| Ш        | JZIOND                          |         |        |              |               |                             |                    |
|          | WSPECT                          |         |        |              |               |                             |                    |
|          | MOUTH ANNEAL                    |         |        |              |               |                             |                    |
| Щ        | FOND SECONS                     |         |        |              |               |                             |                    |
|          | DRYING                          |         |        |              |               |                             |                    |
|          | 0.46" COAT                      |         |        |              |               |                             |                    |
| L        |                                 |         |        |              |               |                             | Ţ                  |
| Ц        | PRIME                           |         |        |              |               |                             |                    |
| $\perp$  |                                 |         |        |              |               |                             |                    |
|          |                                 |         |        |              |               |                             |                    |
| Ц        |                                 |         |        |              |               |                             |                    |
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| <u></u>  |                                 |         |        |              | 777           | 740.62                      | EN TAGER (N. I.M.) |
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| _        |                                 |         |        | 77           | ad Continue   | UN HOLD                     |                    |
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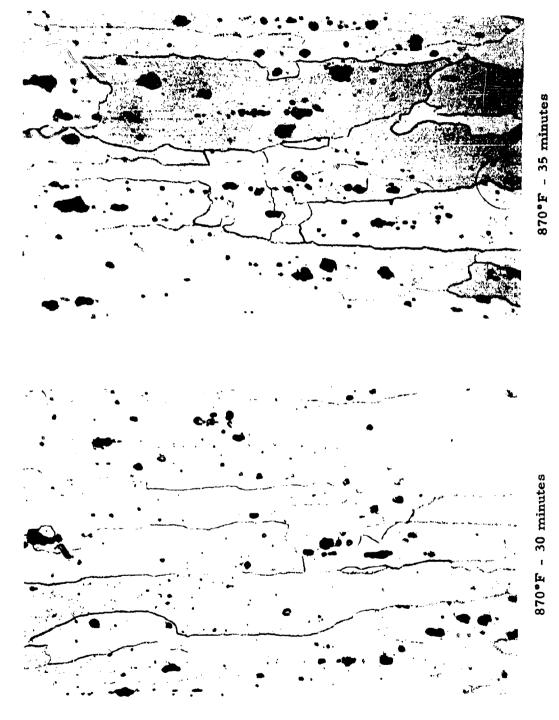




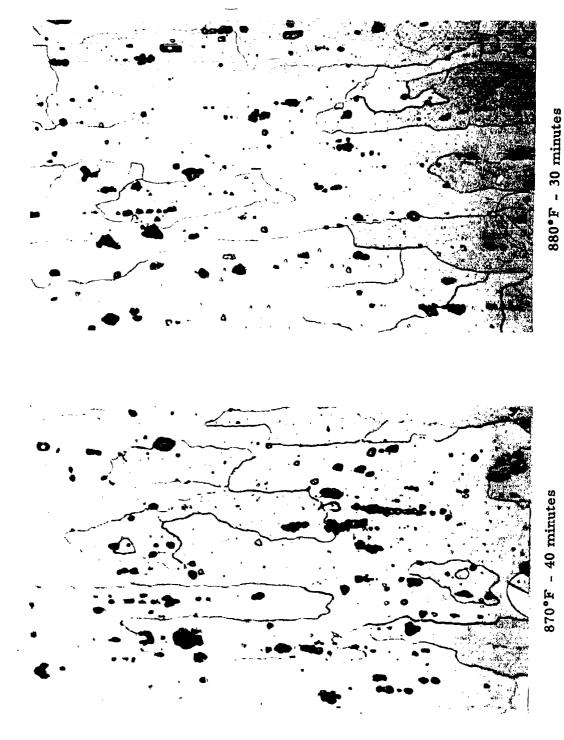
#### APPENDIX D



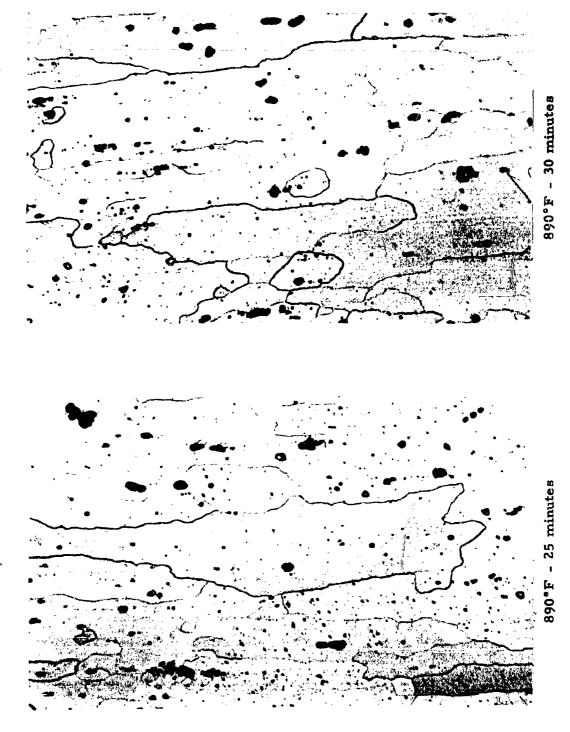
Figures D-1 & D-2. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X



Figures D-3 & D-4. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X



Figures D-5 & D-6. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X



Figures D-7 & D-8. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X



900°F - 30 minutes

Figure D-9. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X

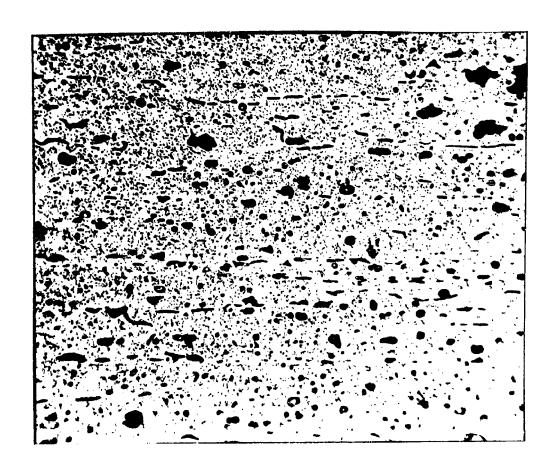


Figure D-10. 7075-0 Material "as received"



Figure D-11. 7075-T6 Material After Annealing

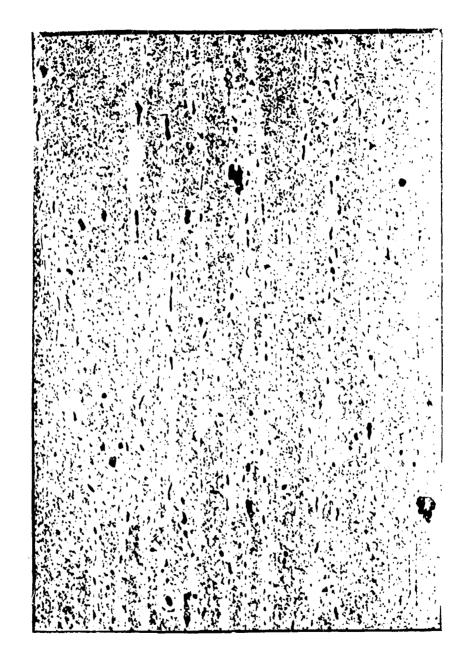


Figure D-12, 7075-0 Material After Solution Quench Treatment and Annealing

#### APPENDIX E

# PROCEDURE FOR ANODIZING ALUMINUM CARTRIDGE CASES

- 1. Rack cases.
- 2. Clean in inhibited alkaline cleaner (.5 lbs Oakite #61 per gal water at 180° 190°F/15').
- 3. Rinse in cold water.
- 4. Pickle (1.43 lbs sulfuric acid 61 Baume plus .27 lbs chromic acid per gal. water/10').
- 5. Rinse in cold water.
- 6. Anodize for 30 min. in a 15 to 18% solution of sulfuric acid /by volume) in water. Bath temperature 70° ± 2°F. Voltage, 18 to 24. Current density, 3 to 5 amps per square foot.
- 7. Rinse in cold water.
- 8. Rinse in cold water.
- 9. Seal for 30 min. in 5% solution of potassium dichromate (by weight) in water at 200 + 205°F.
- 10. Rinse in hot water (180 190°F).
- 11. Dry in oven.
- 12. Remove cases from racks.
- 13. Strip racks (.38 lbs phosphoric acid per gal. water).
- 14. Rinse racks in cold water.
- NOTE: Anodizing operation generates heat. Bath temperature is maintained at 70°F. by a refrigerating unit.

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| AD-<br>R-1646 (Cont'd)            | case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Carlyidge, 7, 62mm, FAT49E4. |              | AD- R-In4b (Cont'd) case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Cartridge, ". bdmm, FAT40E4. |              |
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| AD- ACCESSION NO. R-1644 (Conf'd) | case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Gase, Cartridge, 7.62mm, FAT49E4,  | _            | AD- R-1646 (Contid) case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Cartridge, 7,62mm, FAT49E4.  |              |

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| AD- ACCESSION NO.  | N-1079. Small Arms Ammunition Division, Research and Develop-Small Arms Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa.           | DEVELOPMENT OF CASE, CARTRIDGE, ALUMINUM,<br>FAT49E4 by H. Burgess | Technical Report R-1646, July 1962, 100 pp including illustrations (OMS 4230, 1, 8841, 20, 00, 02, 4230, 1, 8903, 20, 00, 01, DA Project TS1-2, UNCLASSIFIED REPORT | This report covers the design, development, fahrication and evaluation of the 7. 64rm alumnum castridge cases by the blank, cup and draw process. Initial development utilized regular beass case tooling with minor changes. Modification to the initial castridge case design eliminated problems encountered during fabrication. Various firing casualities such as primer leaks, blown princers and gas eroded heads were encountered during testing in rifles and machine guas. 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Changes in heat treatment, the type of propellant and primer used and a closer control of the head area dimensions of the case resulted in the fabrication of a 7.52mm aluminum cartridge |
| UNCLASSIFIED       | 1. Cartridge Case, Aluminum<br>2. 7.62mm Cartridge Case                                                                                             |                                                                    | I. H. Burgess<br>II. OMS 4230, 1.8841, 20, 00, 02<br>4230, 1.8903, 20, 00, 01<br>III. 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OMS 4230.1.8841.20.00.01<br>4230.1.8903.20.00.01<br>III. DA Project T51-2                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DISTRIBUTION LIMITATIONS:<br>None, obtain copies from ASTIA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | . 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| AD.  R-1646 (Contid.)  case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Carlyidge, 7, 52mm, FAT49E4. |              | AD- R-leiv (Cont.d.  Assertaceptible at this stage of its development since it is almost completely free of defects. The case thus diver upon as defects. The case thus five lyed, as denutiled as Case, Carridge, 7.52mm, FAL40E4. |              |
| UNCLASSIFIED                                                                                                                                                                                       | UNCLASSIFIED | UNCLASSIFIED                                                                                                                                                                                                                        | UNCEASSIFIED |
| AD. R.1646 (Contid) Case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Cartridge, 7.62mm, FAT 49E4.    |              | AD- R-15th (Gont'd) cast acceptable at this stage of its development since it is almost completely five of detects. The cast this developed is identified as Caste, Cortridge, T. chem, FAT45E4,                                    |              |